SONY

DME SWITCHER

DFS-300
DFS-300P

SERVICE MANUAL

1st Edition

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

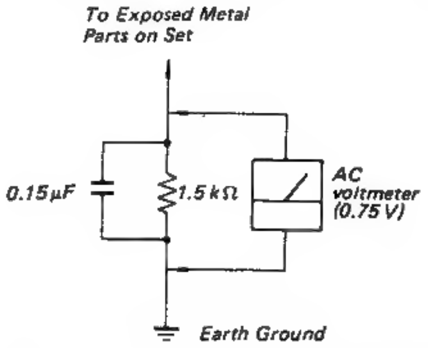

Fig. A. Using an AC voltmeter to check AC leakage.

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SECTION 1
OPERATING INSTRUCTION

This section is extracted from operation manual.

Chapter 1
Introduction

This chapter describes the features and optional accessories of the DFS-300/300P. It also discusses some important safety and handling precautions.

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Features

The DFS-300/300P DME Switcher is a compact, high-performance video switcher consisting of a control panel and a processer. It supports more than 300 native digital special effects, and allows users to create and store their own program effects.

Special effects without TBC

Two built-in frame synchronizers allow you to apply special effects while editing without requiring the connection of an external time base corrector (TBC).

Sophisticated DME (Digital Multi Effects) special effects

The DFS-300/300P supports a rich variety of special effects, ranging from editing effects such as cuts, mixes, and wipes (111 effects) to sophisticated DME patterns such as slide, mirror, mosaic, and picture-in-picture (239 effects). If you install the BKDF-301/301P 3D Effect Option board, you can also apply three-dimensional effects such as 3D rotation, page turn, and sphere.
All of these effects are selectable through simple operations on the control panel. Some of the effect patterns can be modified by edge, location and rotation functions.

User program effects

The control panel has buttons that make it easy to create and store up to 20 of your own special effects. Effects you create can be executed in the same way as the effects built into the DFS-300/300P. If you install the BKDF-301/301P 3D Effect Option board, you can store an additional 20 effects, for a total of 40 user program effects.

Variable transition durations

You can vary the transition duration of effects such as wipes, mixes and downstream key mix in steps of one frame within a range of 0 through 999 frames, and execute the transitions automatically.

Control panel snapshots

You can store up to 100 snapshots of control panel settings in internal snapshot memory. This makes it easy to restore the control panel to a specific state whenever necessary.

Built-in signal generators

The DFS-300/300P has built-in signal generators for color background, border matte, and effect matte signals. By installing the optional BKDF-504/504P DSK Board, you can equip the unit with downstream key matte and downstream key border matte generators, for a total of five internal matte signal generators.
To add variety to title backgrounds, 31 emboss patterns are available for color background mattes. The DFS-300/300P also features built-in color bar and grid patterns.

Three-dimensional functions for impressive visual effects

When the BKDF-301/301P 3D Effect Option board is installed, you can use impressive special effects such as 3D rotation, 3D flip, page turn, twist, and sphere.

Title modes

You can apply special effects to characters and graphics input to the primary input connectors, and use them as key signals for superimposed titles. You can choose between luminance key, which extracts signals of a specified brightness, and chroma key, which extracts signals of a specified hue. You can also use external key signals input to the key signal input connectors as key sources.

Color corrector

The DFS-300/300P has a built-in color corrector function which can be applied to the primary inputs. This allows you to adjust the white balance and color balance of video input signals.

Input/output connectors for numerous signal formats

The DFS-300/300P has input/output connectors for composite, component, and S-video (Y/C separate) signals, allowing it to accept video input from a wide variety of sources.

- **Primary video inputs (3 formats, 4 inputs)**
  For three of the four primary inputs, you can select any of three formats (composite, component, and S-video).
  For the remaining primary input, you can select either component or RGB signals.
- **Program video outputs (3 formats, 6 outputs)**
  There are two output connectors for each of three formats. All six output connectors can be used simultaneously.

Features

Sync input/output connectors for greater editing precision

Black burst output connectors allow you to synchronize external equipment with the DFS-300/300P. To synchronize the DFS-300/300P with external equipment, a gen-lock input connector is included. These connectors allow you to perform highly accurate editing.

- Black burst (3 outputs)
- Gen-lock (1 input)

Key signal input for superimposing characters or graphics

The DFS-300/300P has input/output connectors for title key and downstream key signals, allowing you to superimpose characters and graphics generated by external equipment. (To use the downstream key functions, you need to connect the optional BKDF-504/504P DSK Board.)

- External key source input for title key (1 input)
- Key fill input for downstream key (1 input)
- External key source input for downstream key (1 input)

Key signal output for other switchers

The DFS-300/300P can supply key source signals to another video switcher.

- Key source output (1 output)

Interface with editing control units

The DFS-300/300P has input/output connectors for two types of control signals, allowing you to construct editing systems for a variety of purposes. You can use it with a PVE-500, BVE-600, or BVE-2000 Series Editing Control Unit to construct an A/B roll editing system (two players and one recorder). You can also use it with an RM-450 or PVE-500 Editing Control Unit to construct an A-roll editing system (one player and one recorder) capable of special effects editing.
The DFS-300/300P also offers GPI (General Purpose Interface) signal control, allowing you to use it in an even wider variety of editing environments.

- 9-pin interface connector (1 input/output)
- Cue/trigger/GPI connector (2 inputs)

Rack mounting

The processor unit of the DFS-300/300P can be mounted in an EIA standard 19-inch rack. You can also use the optional BKDF-503 Control Panel Mount Adaptor to mount the control panel in a console.

Optional Boards and Control Panel Mount Adaptor

The following optional boards and control panel mount adaptor are available for the DFS-300/300P through your local Sony representative.

BKDF-301/301P 3D Effect Option

This board provides 130 special effects, including three-dimensional effects such as 3D rotation and 3D flip, as well as non-linear effects such as page turn, twist, and sphere. It also allows you to use perspective with some of the effects built into the DFS-300/300P, and increases the amount of memory available for storing user program effects. With the board installed, you can create and store up to 20 non-linear effects, for a total of 40 user program effects.

Install the BKDF-301/301P board on the processor unit's internal MY-62 circuit board.

For details, refer to the Operating Instructions supplied with the BKDF-301/301P.

BKDF-504/504P DSK Board

This board provides downstream key functions, allowing you to superimpose characters and graphics over a final program picture composed of background and foreground video.

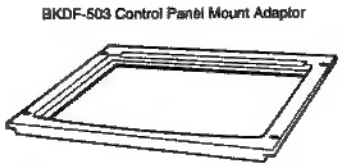
Install the BKDF-504/504P board on the processor unit's internal DA-79 circuit board.

For details, see "Installing Optional Boards" on page 7-10.

BKDF-503 Control Panel Mount Adaptor

You can use the BKDF-503 Control Panel Mount Adaptor to mount the control panel of the DFS-300/300P in a console.

Insert the control panel into the mount adaptor, and secure the mount adaptor to the console using the screws supplied with the mount adaptor.



BKDF-503

Precautions

Safety Precautions

Power supply

- Operate the unit only with a power source complying with the requirements listed in "Specifications" on page A-34.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.

Cabinet

Never drop flammable or metal objects into the cabinet, or spill liquids into it. Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.

In case of malfunction

- If the unit emits an unusual sound or smell, turn off the power immediately, disconnect the power cord, and contact your Sony dealer.
- If the DC-powered cooling fan in the processor unit malfunctions, a warning tone sounds and the message "FA" alternates with the current pattern number in the PATTERN NUMBER display control panel. Turn off the power and contact your Sony dealer.

Handling Precautions

Location

Do not use or store the unit under any of the following conditions:

- In excessive heat and cold (permissible temperature range: 0°C to 40°C (32°F to 104°F)).
- In direct sunlight or near heaters.
- In damp or dusty locations.
- In places subjected to violent vibration.

Protection from Impact

Do not drop the unit or subject it to strong vibrations.

Ventilation

Allow adequate air circulation to prevent internal heat buildup.

Maintenance

Clean the cabinet with a soft, dry cloth. To remove persistent stains, moisten the cloth with a small amount of neutral solvent, and finish by wiping with a dry cloth. Do not use alcohol, benzine, thinner, or volatile liquids, as these may discolor or damage the surface.

Transportation

Transport the unit in the supplied carton or a protective case.

Chapter 2
Location and Function of Parts and Controls

This chapter describes the parts and controls of the DFS-300/300P.

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Processor Unit 2-18
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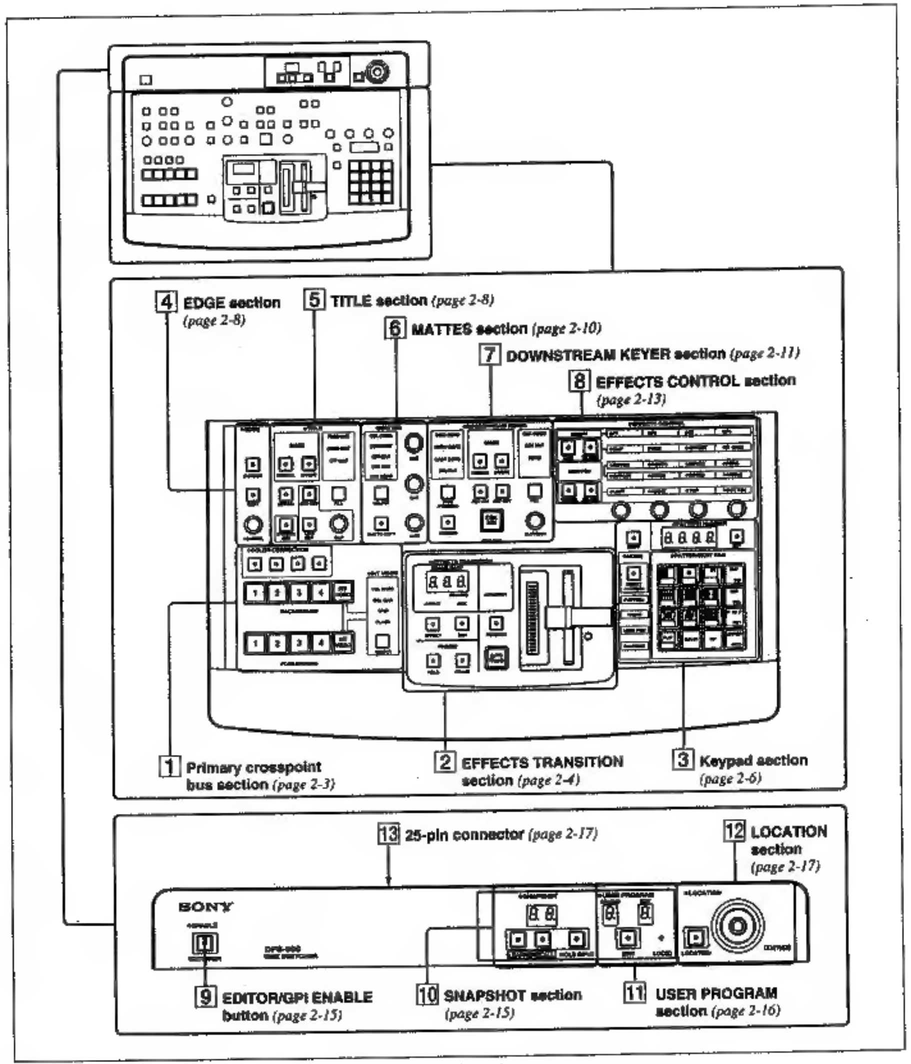
Control Panel

The control panel is made up of several operational sections. This section illustrates and explains the controls in each of the operational sections.

For details, see the pages indicated in parentheses.


4 EDGE section (page 2-8)
5 TITLE section (page 2-8)
6 MATTES section (page 2-10)
7 DOWNSTREAM KEYER section (page 2-11)
8 EFFECTS CONTROL section (page 2-13)
1 Primary crosspoint bus section (page 2-3)
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3 Keypad section (page 2-6)
13 25-pin connector (page 2-17)
12 LOCATION section (page 2-17)
SONY
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10 SNAPSHOT section (page 2-15)
11 USER PROGRAM section (page 2-16)

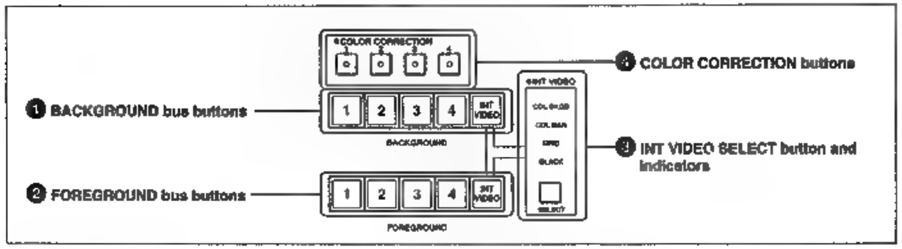
Control panel

Note

If you perform an operation incorrectly, a warning tone sounds and the corresponding buttons, displays and the SHIFT button flash three times.

[1] Primary crosspoint bus section

This section consists of buttons used to select the background and foreground video.


COLOR CORRECTION
1
2
3
4
❹ COLOR CORRECTION buttons
❶ BACKGROUND bus buttons
1
2
3
4
INT VIDEO
BACKGROUND
INT VIDEO
COL BKGD
COL BAR
GRID
BLACK
SELECT
❸ INT VIDEO SELECT button and indicators
❷ FOREGROUND bus buttons
FOREGROUND

Primary crosspoint bus section

❶ BACKGROUND bus buttons

Press to select a video source for the background picture (the picture which is replaced as an effect progresses).

Buttons 1 through 4 correspond to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel of the processor unit. When you press a button, the button lights and the video input to the corresponding connector is selected.

Press the INT VIDEO button to select an internally generated video signal, as selected by the INT VIDEO SELECT button ❸.

The BACKGROUND bus buttons light in red when the selected signals are being output from the PGM OUT connectors on the rear panel.

❷ FOREGROUND bus buttons

Press to select a video source for the foreground picture (the picture which replaces the background pictures as an effect progresses).

Buttons 1 through 4 correspond to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel of the processor unit. When you press a button, the button lights and the video input to the corresponding connector is selected.

Press the INT VIDEO button to select an internally generated video signal, as selected by the INT VIDEO SELECT button ❸.

The FOREGROUND bus buttons light in either red or amber. They light in amber to indicate that the signal is selected, and light in red to indicate that the selected signals are being output from the PGM OUT connectors on the rear panel.

❸ INT (internal) VIDEO SELECT button and indicators

Press this button to select a video signal generated by one of the unit's built-in video signal generators as the background or foreground picture, or before executing an effect that uses an internal video signal during the transition. Each time the button is pressed, one of the following indicators lights to indicate the selected signal.

COL BKGD: A color background signal
COL BAR: A color bar signal
GRID: A grid pattern signal
BLACK: A black burst signal

When you select the color background signal, you can select from among 31 pattern signals (emboss patterns) in addition to the internal color matte signal. With the COL BKGD indicator lit, press the UP or DOWN button in the keypad section [illegible] while holding down a lit button in the FOREGROUND or BACKGROUND bus rows.

Changing FOREGROUND or BACKGROUND bus button labels

If you wish, you can insert one of the supplied labels (VTR, CAM, etc.) in place of the FOREGROUND or BACKGROUND bus button labels. Replace the labels in the same way that you replace PATTERN/KEY PAD button labels.

For details, see page 5-3.

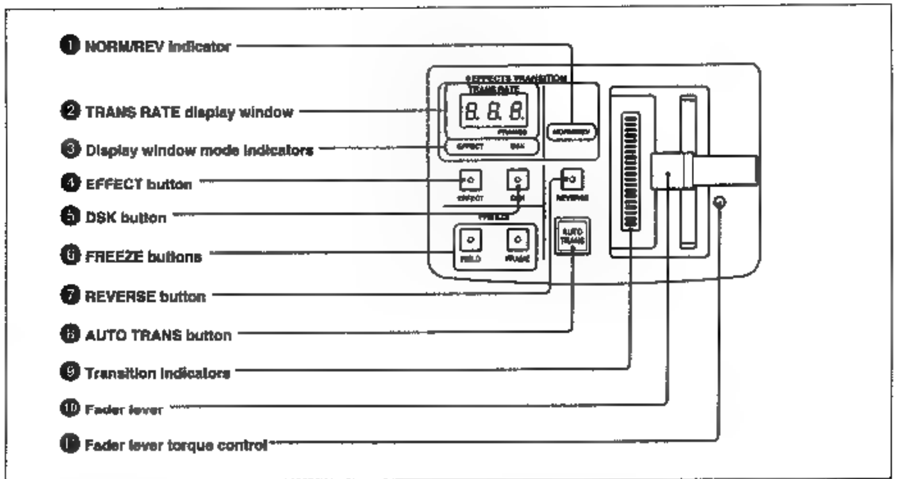
❹ COLOR CORRECTION buttons

Buttons 1 through 4 correspond to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel. When you press a button, the button lights and the video input to the corresponding connector is subjected to color correction.

Adjust the amount of color correction with the knobs in the EFFECTS CONTROL section [6].

[2] EFFECTS TRANSITION section

This section consists of buttons and controls used to control effect transitions and downstream key transitions.


❶ NORM/REV indicator
❷ TRANS RATE display window
❸ Display window mode indicators
❹ EFFECT button
❺ DSK button
❻ FREEZE buttons
❼ REVERSE button
❽ AUTO TRANS button
❾ Transition indicators
❿ Fader lever
⓫ Fader lever torque control
EFFECTS TRANSITION
TRANS RATE
8. 8. 8.
FRAMES
EFFECT
DSK
NORM/REV
EFFECT
DSK
REVERSE
FREEZE
FIELD
FRAME
AUTO TRANS

EFFECTS TRANSITION section

❶ NORM/REV (normal/reverse) indicator

Lights when an effect with normal/reverse motion (animation or title key) is executed.

Note

This indicator does not light when the processor unit's internal editing control unit select switch is set to BVE-600 or RM-450. *(See page 2-22.)*

❷ TRANS RATE (transition rate) display window

Shows the transition duration of an effect or downstream key in units of frames. The duration is displayed as a three-digit number. The dots next to the digits light while you are entering the duration.

❸ Display window mode indicators
Show the kind of transition duration being displayed in the TRANS RATE display window ❷.

EFFECT: An effect transition duration
DSK: A downstream key transition duration

❹ EFFECT (effect duration entry mode) button
Press this button to enter an effect transition duration. This button, the EFFECT indicator ❸, and the TRANS data entry mode indicator in the keypad section ▥ light. Enter the duration using the PATTERN/KEY PAD buttons in the keypad section [3], and press the ENTER button.
Press the EFFECT button again to extinguish the indicators and leave effect duration entry mode.

Note

If you press the EFFECT button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter effect duration entry mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section ▥ to extinguish it.

❺ DSK (downstream key duration entry mode) button
Press this button to enter the duration of a downstream key effect transition. This button, the DSK indicator ❸, and the TRANS indicator in the keypad section ▥ light. Enter the duration using the PATTERN/KEY PAD buttons in the keypad section [3], and press the ENTER button.
Press this button again to extinguish the indicators and leave downstream key duration entry mode.

Note

If you press the DSK button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter effect duration entry mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.

❻ FREEZE buttons
Press to freeze the background picture during an effect transition.

FIELD button: When you press this button, the button lights and the background picture freezes in field freeze mode.

FRAME button: When you press this button, the button lights and the background picture freezes in frame freeze mode.

To leave freeze mode, press the button again to extinguish it.

❼ REVERSE button
Press to reverse the direction of a transition. The direction is reversed when the button is lit, and normal when the button is not lit. After execution of an effect with back-and-forth motion, the direction reverses automatically and this button lights or goes out automatically. It lights if you executed the effect in the normal direction, and goes out if you executed it in the reverse direction.

❽ AUTO TRANS (automatic transition) button
Press to execute an automatic effect transition, using the preset transition duration. The button lights during the transition. If you press this button while it is lit, the transition pauses, and resumes when you press this button again.
If you press this button with the fader lever ❿ located at a point between the top and bottom positions, the transition will pause at that point when you execute the effect.

❾ Transition indicators
These are 20 LED indicators which light to show the progress of effect transitions.

❿ Fader lever
Slide the lever to execute a transition manually.

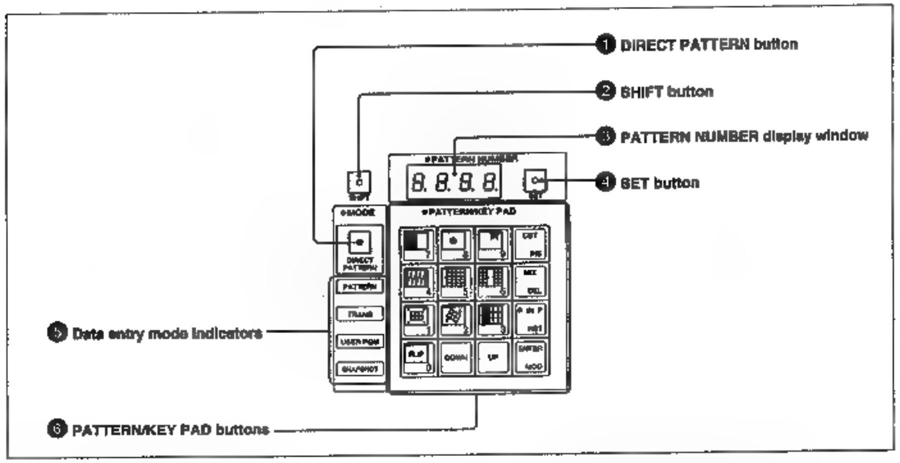
Note

After powering the unit on, activate the fader lever by moving it up and down to the top and bottom positions.

⓫ Fader lever torque control
When turned with a small Phillips screwdriver, adjusts the torque of the fader lever. Turn it clockwise to increase the torque, and counterclockwise to decrease it.

[3] Keypad section

This section consists of buttons used for data entry and effect pattern selection.



Keypad section

❶ DIRECT PATTERN button
Press this button, turning it on, to put the unit into direct pattern select mode. Each of the PATTERN/KEY PAD buttons ❻ (except the UP, DOWN, and ENTER buttons) has an assigned pattern. When this button is lit, you can select these patterns by pressing the buttons.
The unit enters direct pattern select mode when it is powered on, and when it leaves one of the data entry modes.

Note

If you press the DIRECT PATTERN button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter direct pattern select mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section ▥ to extinguish it.

❷ SHIFT button
Press to select shift-button functions.
The names of shift-button functions are printed on the control panel in orange letters. Press this button together with the function button to select the shift-button function.
The SHIFT button also flashes when warning tones sound to alert you to incorrect operations on the control panel.

❸ PATTERN NUMBER display window
Displays the effect pattern number as a four-digit number. The dots next to the digits light while you are entering a pattern number. In user program edit mode, effect pattern parameter values can be displayed here.

❹ SET (pattern number entry mode) button
Press this button, turning it on, to put the unit into pattern number entry mode. The PATTERN indicator ❺ lights. In this mode, you can use the PATTERN/KEY PAD buttons ❻ to enter an effect pattern number.
Press the button again to extinguish it and leave pattern number entry mode.

Note

If you press the SET button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter pattern number entry mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.

❺ Data entry mode indicators

Light to indicate that the PATTERN/KEY PAD buttons ❻ are being used for data entry rather than for direct pattern selection. The indicator corresponding to the data entry mode lights.

PATTERN: Pattern number entry mode.
Use this mode when you want to execute an effect after entering its pattern number. To select this mode, press the SET button ❹.

TRANS: Transition duration entry mode.
Enter the transition duration of an effect or a downstream key effect in units of frames using the PATTERN KEY PAD buttons and the EFFECT TRANSITION section ■ buttons.

USER PGM: User program edit mode.
Create and edit a user program using the buttons and controls in the USER PROGRAM section 11, the EFFECTS CONTROL section 8, and the LOCATION section ■.

SNAPSHOT: Snapshot number entry mode.
Enter a snapshot number in the range from 0 to 99 to save the current control panel settings or recall the saved control panel settings. Select this mode with the buttons of the SNAPSHOT section 10, and enter the number with the PATTERN/KEY PAD buttons.

❻ PATTERN/KEY PAD buttons

Function as shown in the following table, according to the currently selected operational mode.

Changing PATTERN/KEY PAD button labels

If you wish, you can insert one of the supplied labels in place of the PATTERN/KEY PAD button bus button labels.

For details, see page 5-3.

Functions of the PATTERN/KEY PAD Buttons

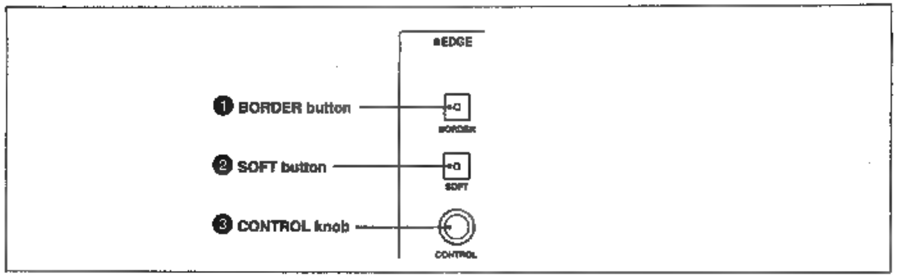
Buttons	Mode				
	DIRECT PATTERN	PATTERN	TRANS	USER PGM	SNAPSHOT
0 to 9	Select the pattern depicted on the button[a]	Enter a pattern number	Enter a transition duration	Display parameter values	Enter a snapshot number
CUT INS	Selects CUT	—	—	Adds a key frame	—
MIX DEL	Selects MIX	—	—	Deletes a key frame	—
P IN P INIT	Selects P IN P	Resets the entered value to 0	Resets the entered value to 0	Initializes parameters	Resets the entered value to 0
UP	Adds one to the pattern number	Adds one to the selected pattern number	Adds one frame to the transition duration	Adds one to the key frame number	Adds one to the snapshot number
DOWN	Subtracts one from the pattern number	Subtracts one from the pattern number	Subtracts one frame from the transition duration	Subtracts one from the key frame number	Subtracts one from the snapshot number
ENTER MOD	—	Accepts the entered value	Accepts the entered value	Modifies key frame data	Accepts the entered value

–: Not used

a) *For more information about the patterns assigned to these buttons, see pages 4-6 to 4-10.*

4 EDGE section

This section consists of buttons and controls used to adjust the border between foreground and background pictures.



EDGE section

❶ BORDER button

Press this button, turning it on, to add a border line in the color selected for the built-in border matte at the edge between the foreground and background pictures. Press it again to extinguish the button and delete the border.

❷ SOFT button

Press this button, turning it on, to blur the edge between the foreground and background pictures. Press it again to extinguish the button and sharpen the edge.

❸ CONTROL knob

Adjusts the width of the border or the softness of the edge.

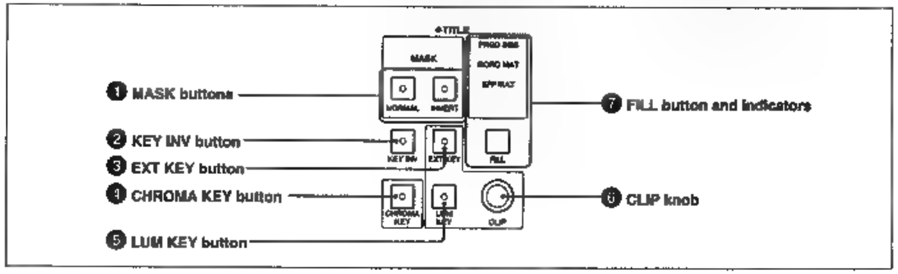
Notes

- Borders and soft edges cannot be used simultaneously.
- Borders and soft edges cannot be added to some effects. A warning tone sounds if you press the BORDER or SOFT button after selecting such an effect.

For details, see "Effect Parameters" (page A-4).

5 TITLE section

This section consists of buttons and controls used to make settings for a title key, which creates a program picture by superimposing foreground characters or graphics over a background picture. To generate the foreground characters or graphics, you can choose between luminance key, which extracts signals of a specified brightness, and chroma key, which extracts signals of a specified hue.



TITLE section

❶ MASK (key mask) buttons

Press one of these buttons, turning it on, to mask the portion of a superimposed signal which lies inside or outside a rectangular area in the picture. Press the button again to extinguish it and remove the mask.

NORMAL button: Mask the portion outside the rectangle.

INVERT button: Mask the portion inside the rectangle.

Use the buttons in the EFFECTS CONTROL section [8] to define the rectangle.

Note

The NORMAL and INVERT masks cannot be used simultaneously.

❷ KEY INV (key polarity inversion) button

Press this button, turning it on, to invert the polarity (black and white) of a luminance key source signal. Press the button again to extinguish it and restore the original polarity.

Note

This button is disabled when the CHROMA KEY button ❹ is lit.

❸ EXT KEY (external key) button

Press this button to select an external key source signal. The button lights, and the signal input to the EXT KEY IN connector is selected as the key source signal. Press the button again to extinguish it and select the default key source signal (a self-key source signal generated from the luminance signal of the video input to the VIDEO INPUTS connectors and selected with the FOREGROUND bus buttons).

Note

The signal input to the EXT KEY IN connector must be synchronized with the video input signals selected by the FOREGROUND bus buttons (the key fill signal).

❹ CHROMA KEY button

Press this button, turning it on, to select chroma key mode. In this mode, foreground signals are extracted with the key source on the basis of hue. Press the button again to extinguish it and leave chroma key mode.

To set the chroma key parameters (clipping level and hue), use the knobs in the EFFECTS CONTROL section [8].

❺ LUM KEY (luminance key) button

Press this button, turning it on, to select luminance key mode. In this mode, foreground signals are extracted with the key source on the basis of brightness. Press the button again to extinguish it and leave luminance key mode.

❻ CLIP (clipping level) knob

In luminance key mode, adjusts the clipping level (threshold luminance level) of the key source signal selected with the FOREGROUND bus buttons.

Notes

- You cannot use the CLIP control to adjust the clipping level of a signal input to the EXT KEY IN connector. To adjust the level, use the TITLE EXT KEY CLIP control on the internal AD-104 board in the processor unit.
- When luminance key mode is off, or when the EXT KEY button ❸ is lit, turning the CLIP knob sounds a warning tone.
- Set the chroma key clipping level with the CLIP knob in the EFFECTS CONTROL section [8].

❼ FILL button and indicators

Press the button to select the signals that fill empty areas in key source signals. Each time you press the button, one of the following indicators lights and the corresponding fill signal is selected.

FRGD BUS: The video selected with the FOREGROUND bus buttons

BORD MAT: A border matte

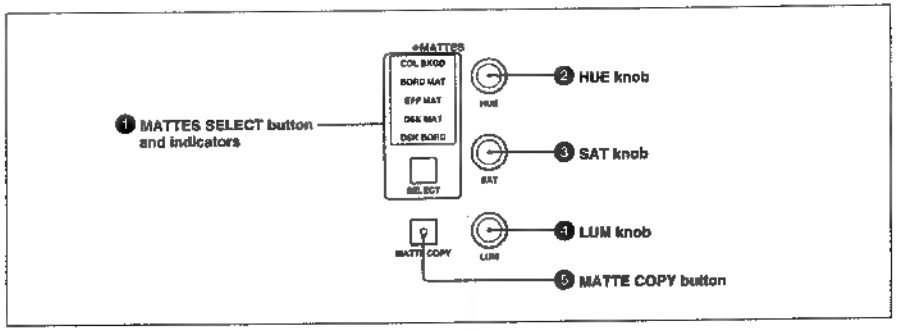
EFF MAT: An effect matte

Note

When you are using an external key source signal, you cannot use the color background selected by the FOREGROUND bus INT VIDEO button as a key fill signal. To use an internally generated matte as the key fill signal, select either BORD MAT or EFF MAT.

[6] MATTES section

This section consists of buttons and controls used to adjust the three built-in color matte signals (color background, border matte, and effect matte) and the two matte signals made available when the optional BKDF-504/504P DSK Board is installed in the processor unit.



MATTES section

❶ MATTES SELECT button and indicators

Press the SELECT button to select a matte signal for adjustment. Each time you press the button, one of the following indicators lights and the corresponding matte signal is selected.

COL BKGD: The color background used for the internal video signal selected in the primary crosspoint bus section [1].

BORD MAT: The border matte used for borders selected in the EDGE section [4], and the key fill signal used for titles.

EFF MAT: The color matte used in effect patterns, and the key fill signal used for titles.

DSK MAT: The color matte used as a downstream key fill signal.

DSK BORD: The color matte used as the border of a downstream key signal.

Notes

- These color mattes are selected automatically when you press buttons in other sections. For example, when BORDER is selected in the EDGE section [4], a border matte is selected. If a matte is already selected, you do not need to select it again with the SELECT button.
- DSK MAT and DSK BORD cannot be selected unless you have installed the optional BKDF-504/504P DSK Board.

❷ HUE knob

Adjusts the hue of the color matte selected with the MATTES SELECT button ❶.

❸ SAT (saturation) knob

Adjusts the saturation of the color matte selected with the MATTES SELECT button ❶.

❹ LUM (luminance) knob

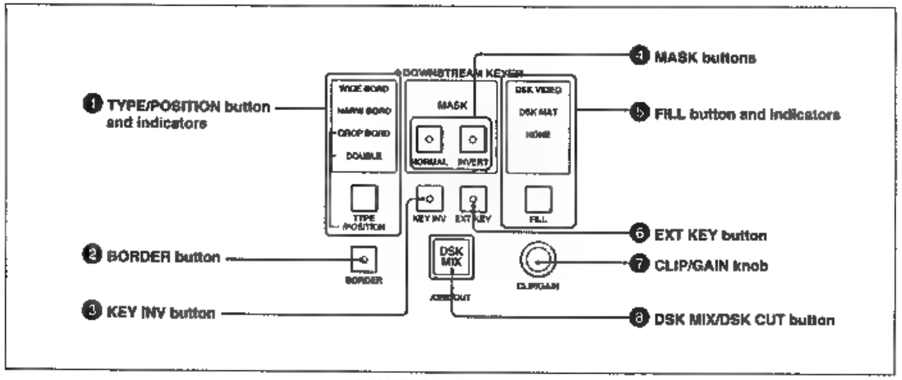
Adjusts the luminance of the color matte selected with the MATTES SELECT button ❶.

❺ MATTE COPY button

Press to copy the hue selected for a color matte onto another color matte.

[7] DOWNSTREAM KEYER section

This section consists of buttons and controls used to make settings for a downstream key (DSK), which superimposes characters or graphics on a program picture made up of foreground and background video.



DOWNSTREAM KEYER section

Notes

- To use downstream key functions, you need to install the optional BKDF-504/504P DSK Board in the processor unit.
- Downstream key signals are input from the DSK VIDEO IN and DSK KEY IN connectors on the rear panel of the processor unit. These signals must be synchronized with the reference signal generated by this unit's built-in reference signal generator.

❶ TYPE/POSITION button and indicators

This button has two functions. Select them by pressing the button alone, or by pressing it together with the SHIFT button in the keypad section [3].

- **Function when button is pressed alone (TYPE)**

  Press the button alone to select a downstream key border type. Each time you press it, one of the following indicators lights and the corresponding border type is selected.

  WIDE BORD: Wide border
  NARW BORD: Narrow border
  DROP BORD: Drop border (like a background shadow)
  DOUBLE: Double border (combination of narrow and drop borders)

- **Function when button is pressed with SHIFT button (POSITION)**

  Press the button together with the SHIFT button in the keypad section [3] to change the position where the border is added to the downstream key signal. Each time you press it, the position of the border changes in the order upper left, upper right, lower right, lower left.

  You can change the positions of drop and double borders only. A warning tone sounds if you press the key while the WIDE BORD or NARW BORD indicator is lit.

❷ BORDER button

Press this button, turning it on, to add the selected border to the downstream key signal. Press the button again to extinguish it and delete the border.

❸ KEY INV (invert) button

Press this button, turning it on, to invert the polarity (black and white) of a downstream key source signal. Press the button again to extinguish it and restore the original polarity.

❹ MASK buttons

Press one of these buttons, turning it on, to mask the portion of a downstream key signal which lies inside or outside a rectangular area in the picture. Press the button again to extinguish it and remove the mask.

NORMAL button: Mask the portion outside the rectangle.

INVERT button: Mask the portion inside the rectangle.

Use the buttons in the EFFECTS CONTROL section [8] to define the rectangle.

Note

The NORMAL and INVERT masks cannot be used simultaneously.

❺ FILL button and indicators

Press the button to select the signals that fill empty areas in downstream key source signals. Each time you press the button, one of the following indicators lights and the corresponding fill signal is selected.

DSK VIDEO: The video input to the DSK VIDEO IN connectors on the rear panel.
DSK MAT: The DSK board's internal fill matte.
NONE: No fill signal (border only).

Note

If you select NONE, the DSK border is turned on automatically. If you press the BORDER button ❷ to turn it off, no downstream key will be displayed when you press the DSK MIX/DSK CUT button ❽.

❻ EXT (external) KEY button

Press this button to select an external signal as the downstream key source signal. The button lights, and the signal input to the DSK KEY IN connectors on the rear panel of the processor unit is selected as the downstream key source signal. Press the button again to extinguish it and select the default downstream key source signal (the luminance signal of the video signal input to the DSK VIDEO IN connectors of the processor unit).

❼ CLIP/GAIN knob

This knob has two functions. Select them by rotating the knob alone, or by rotating it while pressing the SHIFT button in the keypad section [3].

- **Function when knob is rotated alone (CLIP)**

  Adjusts the clipping level (threshold luminance level) of the downstream key source signal input to the DSK VIDEO IN or DSK KEY IN connectors to define the outlines of inserted characters or graphics.

- **Function when knob is rotated with SHIFT button pressed (GAIN)**

  Adjusts the gain of the signal input to the DSK VIDEO IN or DSK KEY IN connectors to determine the sharpness of the outline.

Note

The CLIP/GAIN knobs is enabled only while a downstream key source signal is being used to insert a key into the picture. A warning tone sounds if you rotate the knob when no downstream key source signal is being used.

❽ DSK (downstream key) MIX/DSK CUT button

This button has two functions. Select them by pressing the button alone, or by pressing it together with the SHIFT button in the keypad section [3].

- **Function when button is pressed alone (DSK MIX)**

  Press the button alone to select a DSK mix effect.

  The downstream key signal is mixed in gradually, according to the transition duration set using the buttons in the keypad section [3]. During the transition, this button lights in amber; when the transition is complete, it lights in red to indicate that the downstream key signal is inserted.

  To remove the signal, press the button again, making it light in amber. The signal is mixed out gradually, according to the transition duration. When the transition is complete, the button goes out.

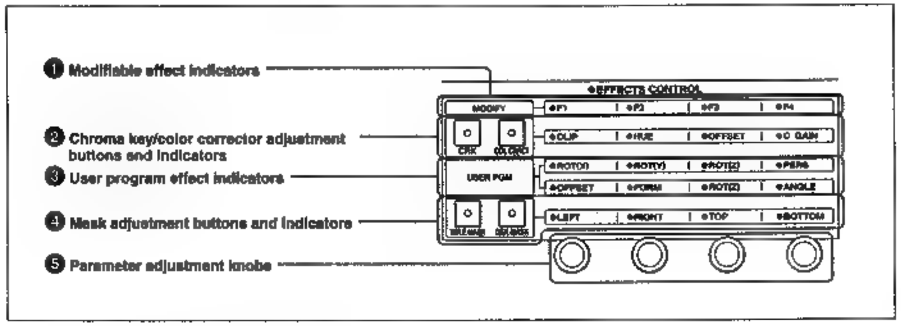
- **Function when button is pressed with SHIFT button (DSK CUT)**

  Press the button together with the SHIFT button in the keypad section [3] to select a DSK cut effect.

  The downstream key signal is cut in instantly, and the button lights in red. To remove the signal, press the button again. The signal is cut out instantly, and the button goes out.

[8] EFFECTS CONTROL section

This section consists of buttons and controls used to set effect parameters.


❶ Modifiable effect indicators
❷ Chroma key/color corrector adjustment buttons and indicators
❸ User program effect indicators
❹ Mask adjustment buttons and indicators
❺ Parameter adjustment knobs
●EFFECTS CONTROL
MODIFY
●F1
●F2
●F3
●F4
CRK
COL CRCT
●CLIP
●HUE
●OFFSET
●C GAIN
USER PGM
●ROT(X)
●ROT(Y)
●ROT(Z)
●PERS
●OFFSET
●FORM
●ROT(Z)
●ANGLE
TITLE MASK
DSK MASK
●LEFT
●RIGHT
●TOP
●BOTTOM

EFFECTS CONTROL section

❶ Modifiable effect indicators

The MODIFY indicator lights when a user-modifiable effect is selected. Indicators F1 through F4 correspond to the four parameter adjustment knobs ❺. The indicators light only if the knobs can be used to modify the effect. If you rotate a knob whose indicator is not lit, a warning tone sounds.

❷ Chroma key/Color corrector adjustment buttons and indicators

Use these buttons to select chroma key or color correction adjustment mode.

CRK (chroma key) button: Pressing this button, turning it on, while the CHROMA KEY button in the TITLE section [5] is lit puts the unit into chroma key adjustment mode. The CLIP and HUE indicators light, and you can adjust the chroma key clipping level and hue by rotating the corresponding parameter adjustment knobs ❺. When finished, press the CRK button again to extinguish it and leave chroma key adjustment mode.

COL CRRCT (color corrector) button: Press this button, turning it on, to adjust the color correction applied to input video.
The HUE, OFFSET, and C GAIN indicators light. Adjust the hue, offset, and chroma gain of video input to the primary inputs by rotating the corresponding parameter adjustment knobs ❺. When finished, press the COL CRRCT button again to extinguish it and leave color corrector adjustment mode.

Notes

- Chroma key and color correction parameters cannot be adjusted simultaneously.
- If you press one of the color adjustment buttons while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter color adjustment mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.
- If you press the CRK button while the CHROMA KEY button in the TITLE section [5] is off, a warning tone sounds, and the unit does not enter chroma key adjustment mode. Similarly, if you press the COL CRRCT button while the COLOR CORRECTION button in the primary crosspoint but section [1] is off, a warning tone sounds, and the COL CRRCT button does not work.

❸ User program effect indicators

These indicators light while you are creating or editing a user program effect.
If you specify a linear effect, the ROT(X), ROT(Y), ROT(Z), and PERS indicators light, and you can adjust the parameters of the effect by rotating the corresponding parameter adjustment knobs ❺. Note, however, that the PERS (perspective) indicator does not light unless you have installed the BKDF-301/301P 3D Effect Option board.
If you specify a nonlinear effect, the OFFSET, FORM, ROT(Z), and ANGLE indicators light, and you can adjust the parameters by rotating the corresponding parameter adjustment knobs ❺.

Note

You need to install the optional BKDF-301/301P board to use nonlinear user program effects.

❹ Mask adjustment buttons and indicators

TITLE MASK button: Press to select title mask adjustment mode. The button lights, and the LEFT, RIGHT, TOP, and BOTTOM indicators light. Adjust the mask area by rotating the corresponding parameter adjustment knobs ❺. When finished, press the TITLE MASK button again to extinguish it and leave title mask adjustment mode.

DSK MASK button: Press to select DSK mask adjustment mode. The button lights, and the LEFT, RIGHT, TOP, and BOTTOM indicators light. Adjust the mask area by rotating the corresponding parameter adjustment knobs ❺. When finished, press the DSK MASK button again to extinguish it and leave DSK mask adjustment mode.

Notes

- If you press one of the mask adjustment buttons while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter mask adjustment mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.
- Title mask and DSK mask parameters cannot be adjusted simultaneously.

❺ Parameter adjustment knobs

These knobs have the following six functions.

- For linear user program effects, the knobs set parameters for X-axis rotation (ROT(X)), Y-axis rotation (ROT(Y)), Z-axis rotation (ROT(Z)), and perspective (PERS).
- For nonlinear user program effects, the knobs set parameters for the degree of modification (OFFSET), the type of modification (FORM), Z-axis rotation (ROT(Z)), and the effect angle (ANGLE).
- In chroma key adjustment mode, the knobs set parameters for clipping level (CLIP) and hue (HUE).
- In color corrector adjustment mode, the knobs set parameters for hue (HUE), offset value (OFFSET) and chroma gain (C GAIN).
- For user-modifiable effects, the knobs set parameters corresponding to indicators F1 through F4. The parameters depend on the selected effect, and some knobs are not used for some effects. If you rotate a knob that is not used, a warning tone sounds.

For more information about the parameters, see "Effect Control Parameters" (page A-7).

- In the mask adjustment modes, the knobs adjust the title or downstream key mask areas. Rotate the knobs to adjust, from left, the LEFT, RIGHT, TOP, or BOTTOM borders of the mask areas.

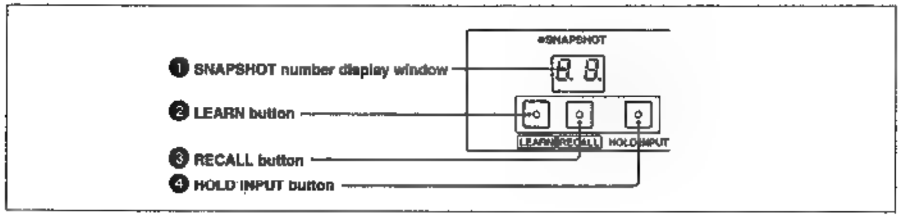
[9] EDITOR/GPI ENABLE button

This button has two functions. Select them by pressing the button alone, or by pressing it together with the SHIFT button in the keypad section [3].

- **Function when button is pressed alone (EDITOR)**
  Press the button alone to enable control from an editing control unit. The button lights, and you can control the DFS-300/300P from an editing control unit connected to the EDITOR connector on the rear panel of the processor unit. Press the button again to extinguish it and disable control from the editing control unit.
- **Function when button is pressed with SHIFT button (GPI)**
  Press the button together with the SHIFT button in the keypad section to enable control by GPI signals. The buttons light, and you can control the DFS-300/300P from a device connected to the T1/CUE or T2 connector on the rear panel of the processor unit. Press the buttons again to extinguish the EITOR/GPI ENABLE button and disable GPI control.
  You can check whether control by GPI signals is enabled by pressing the SHIFT button alone. If control is enabled, the EDITOR/GPI button lights. If control is not enabled, the EDITOR / GPI button does not light.

[10] SNAPSHOT section

This section consists of buttons used to register and recall snapshots of the control panel. You can save up to 100 snapshots, numbered from 0 through 99.



SNAPSHOT section

❶ SNAPSHOT number display window

Shows the snapshot number (0 to 99). The dots next to the digits light while you are entering the number.

❷ LEARN button

Press this button, turning it on, to register a snapshot.
Use the buttons in the keypad section [3] to enter any number from 0 to 99, and press the ENTER button. The current settings of the control panel are saved under that number in snapshot memory, the LEARN button goes out, and the unit leaves snapshot learn mode.

❸ RECALL button

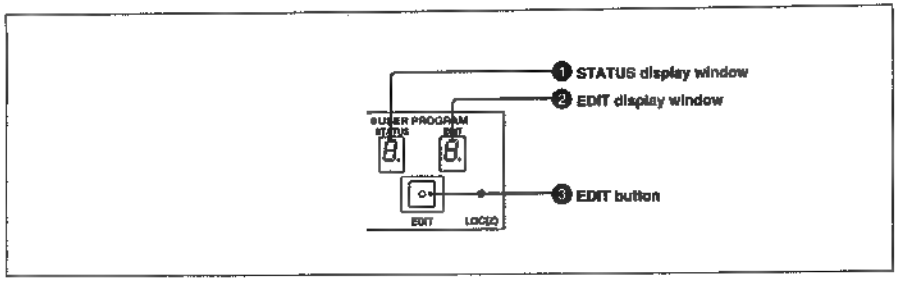
Press this button, turning it on, to recall a snapshot. Use the buttons in the keypad section [3] to enter any number from 0 to 99, and press the ENTER button. The control panel is set to the settings saved in the specified snapshot, the RECALL button goes out, and the unit leaves snapshot recall mode.

❹ HOLD INPUT button

Press this button, turning it on, if you do not want to overwrite the settings of the primary crosspoint bus section [1] (selected video input) when you recall a snapshot. When you recall the snapshot, all settings are recalled to control panel except those of the primary crosspoint bus section.
Press the HOLD INPUT button again to extinguish it and enable recall of primary crosspoint bus section settings.

[11] USER PROGRAM section

Use this section to create and edit user program effects. To edit the effects, the keypad section [3] and EFFECTS CONTROL section [8] are also used.



USER PROGRAM section

❶ STATUS display window

When you select a user program effect, displays the number of key frames (maximum 8) that make up the effect.

❷ EDIT display window

In user program edit mode, displays the number of the key frame currently being edited.

❸ EDIT button

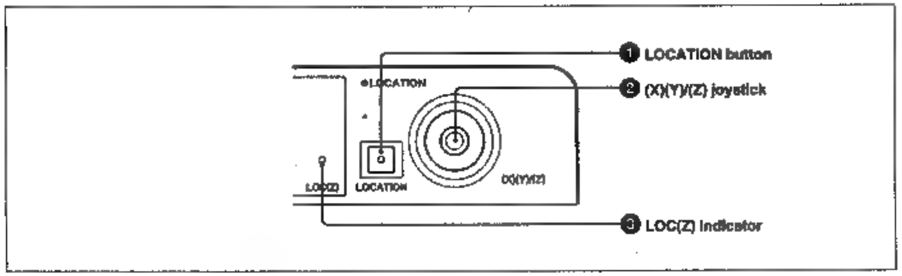
Press to select user program edit mode. The EDIT button and the USER PGM indicator in the keypad section [3] light.
Press the button again to leave user program edit mode.

Note

If you press the EDIT button after selecting an effect other than a user program effect, a warning tone sounds, and the unit does not enter user program edit mode.

12 LOCATION section

Use this section to move the position of an effect pattern.


❶ LOCATION button
❷ (X)(Y)/(Z) joystick
❸ LOC(Z) indicator
LOCATION
LOC(Z)
LOCATION
(X)(Y)/(Z)

LOCATION section

❶ LOCATION button

Press this button, turning it on, to enable the (X)(Y)/(Z) joystick ❷.
Press it again to extinguish the button, disable the joystick, and reset the effect position.

Note

If you press the LOCATION button or move the joystick after selecting an effect pattern whose position cannot be moved, a warning tone sounds.

For more information about which patterns can be moved, see "Effect Parameters" (page A-4).

❷ (X)(Y)/(Z) joystick

- **To adjust the X-axis and Y-axis**
  Move the joystick laterally (X-axis) or vertically (Y-axis).
- **To adjust the Z-axis**
  With the LOC(Z) indicator ❸ lit, move the joystick vertically while pressing the SHIFT button in the keypad section 3. This changes the effect pattern position in the direction of depth of screen (Z-axis), or the apparent size of the pattern.

❸ LOC(Z) indicator

Lights when you select a pattern which can be moved along the Z-axis.

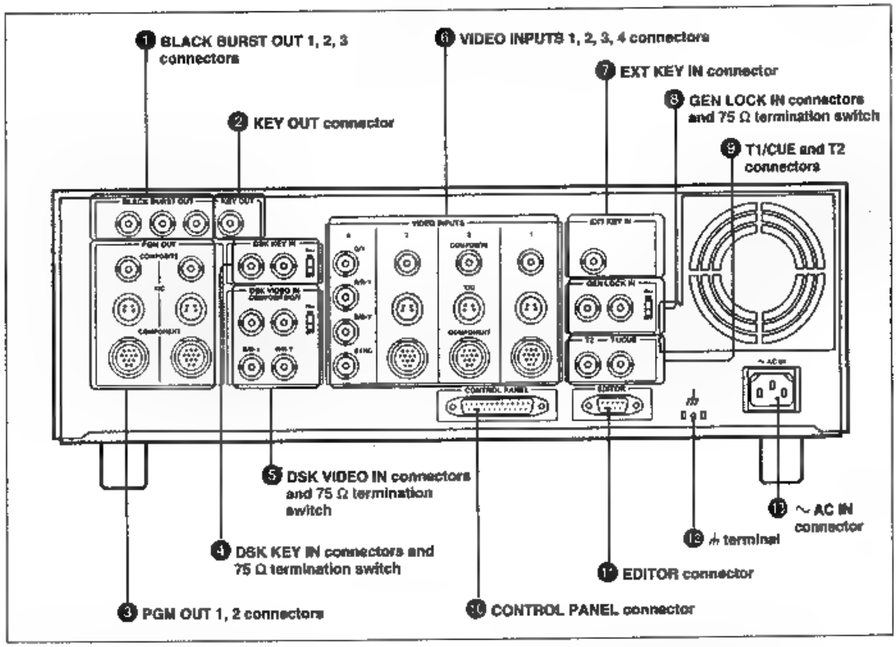
13 25-pin connector (rear panel)

Connect to the CONTROL PANEL connector on the processor unit using the supplied 25-pin remote control cable.

Processor Unit

This section illustrates and describes the connectors and switches of the processor unit.

Rear Panel


❶ BLACK BURST OUT 1, 2, 3 connectors
❷ KEY OUT connector
❻ VIDEO INPUTS 1, 2, 3, 4 connectors
❼ EXT KEY IN connector
❽ GEN LOCK IN connectors and 75 Ω termination switch
❾ T1/CUE and T2 connectors
❺ DSK VIDEO IN connectors and 75 Ω termination switch
❹ DSK KEY IN connectors and 75 Ω termination switch
❸ PGM OUT 1, 2 connectors
❿ CONTROL PANEL connector
⓫ EDITOR connector
⓭ ⏚ terminal
⓬ ~ AC IN connector

Rear panel

❶ BLACK BURST OUT (output) 1, 2, 3 connectors (BNC-type)

These connectors normally output a black burst signal generated by the unit's built-in sync signal generator. When an external sync signal is input to the GEN LOCK IN connectors ❽, a black burst signal synchronized with the external sync signal is output. If you have installed the optional BKDF-504/504P DSK Board, use the output from these connectors as a reference sync signal for character generators and other DSK signal sources.
To improve editing accuracy, supply the black burst signal from these connectors to the VCRs and editing control unit in your editing system.

❷ KEY OUT connector (BNC-type)

Connect to the external key input connector of a switcher. During execution of an effect, a signal corresponding to the effect outline is output as the key source signal. In title mode, the key source signal is output.

❸ PGM OUT (program output) 1, 2 connectors

Output the final program picture created with the DFS-300/300P. Connect to the video input connectors on a recorder VCR or program monitor.

COMPOSITE (BNC-type): Output a composite video signal.
Y/C (4-pin): Output an S-video signal with separate Y (luminance) and C (chrominance) components.

COMPONENT (12-pin): Output a Betacam-format component video signal.

Signals in all three of the above formats can be output simultaneously. Connectors 1 and 2 output the same signals.

❹ DSK KEY IN (downstream key input) connectors (BNC-type) and 75 Ω termination switch

Connect one of these connectors to the external key output connector on a character generator or other signal source, and input a key source signal for a downstream key. The signal input to one of these connectors is used as the key source signal when the EXT KEY button in the DOWN-STREAM KEYER section of the control panel is lit. If the EXT KEY button is not lit, the signal input to the DSK VIDEO IN connector ❺ is used as the key source signal.

When using one of these connectors as a loop-through output connector to supply a key source signal to other video equipment, set the 75 Ω termination switch to OFF. Otherwise, set the 75 Ω termination switch to ON.

❺ DSK VIDEO IN (downstream video input) connectors and 75 Ω termination switch

Input a fill signal for a downstream key, to fill the hole cut with the key source signal. Input a composite signal or a component video signal (Betacam-format luminance and color-difference signals, or RGB signals).

COMPOSITE/G/Y (BNC-type): Input a composite signal, the G signal, or the Y (luminance) signal.

B/B–Y (BNC-type): Input the ■ signal or the B–Y (color-difference) signal.

R/R–Y (BNC-type): Input the R signal or the R–Y (color-difference) signal.

Select the signal format with the DSK VIDEO SELECT switch on the DA-79 board *(see page 2-23)*.

When a composite video signal is input to one of these connectors, the other connector can be used as ■ loop-through output connector to supply ■ key fill signal to other video equipment. When using a loop-through connection, set the 75 Ω termination switch to OFF. Otherwise, set the 75 Ω termination switch to ON.

When the key source signal input to the DSK KEY IN connector ❹ is not used, the luminance signal of the signal input to one of these connectors is used as the key source signal.

❻ VIDEO INPUTS 1, 2, 3, 4 connectors

Input video signals from video cameras or player VCRs.

- **VIDEO INPUTS 1, 2, 3**

  COMPOSITE (BNC-type): Input a composite video signal.

  Y/C (4-pin): Input an S-video (Y/C separate) signal.

  COMPONENT (12-pin): Input a Betacam-format component video signal.

Select the signal format by setting the IN 1, 2, 3 switches on the AD-104 board *(see page 2-21)*.

You can input signals of different formats to the 1, 2, and 3 connectors.

- **VIDEO INPUTS 4**

  Input a component video signal (Betacam-format luminance and color-difference signals), or an RGB signal.

  G/Y (BNC-type): Input the G or Y (luminance) signal.

  R/R–Y (BNC-type): Input the ■ or R–Y (color-difference) signal.

  B/B–Y (BNC-type): Input the B or B–Y (color-difference) signal.

  SYNC (BNC-type): Input a sync signal (RGBS mode only).

Select the signal format by setting the IN 4 switch on the AD-104 board *(see page 2-21)*.

❼ EXT KEY IN (external key input) connector (BNC-type)

Input a key source signal for title key. Connect to the external key output connector on a character generator or other external key source. The signal input to this connector is used as the key source signal when the EXT KEY button in the TITLE section of the control panel is lit. When the EXT KEY button is not lit, ■ signal input to the VIDEO INPUTS connectors ❻ is used.

❽ GEN LOCK IN connectors (BNC-type) and 75 Ω termination switch

Input ■ black burst signal to one of these connectors to synchronize this unit to an external reference signal.

You can use one of the connectors as a loop-through output connector to supply the reference sync signal to other equipment. When using a loop-through connection, set the 75 Ω termination switch to OFF. Otherwise, set the termination switch to ON.

❾ T1/CUE (trigger 1/cue) and T2 (trigger 2) connectors (BNC-type)

Input a trigger signal to start an effect when executing an automatic edit from an editing control unit such as the RM-450 or BVE-600. Connect to the cue connector or trigger output connector of the editing control unit.

To start an effect using a GPI signal, input the GPI signal to the T1/CUE connector. You can also turn on and off a downstream key by connecting another GPI signal to the T2 connector.

❿ CONTROL PANEL connector (25-pin)

Connect to the 25-pin connector of the control panel unit using the supplied 25-pin remote control cable.

⓫ EDITOR connector (9-pin)

To control the DFS-300/300P from the PVE-500 or a BVE-2000 series editing control unit, connect to the editing control unit's 9-pin control connector using a 9-pin remote control cable.

⓬ ⏚ (ground) terminal

Connect to ground as necessary.

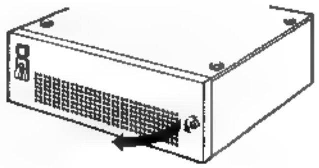
⓭ ∿AC IN (AC power input) connector

Connect to an AC power outlet using the supplied AC power cord.

Front Panel and Internal Boards

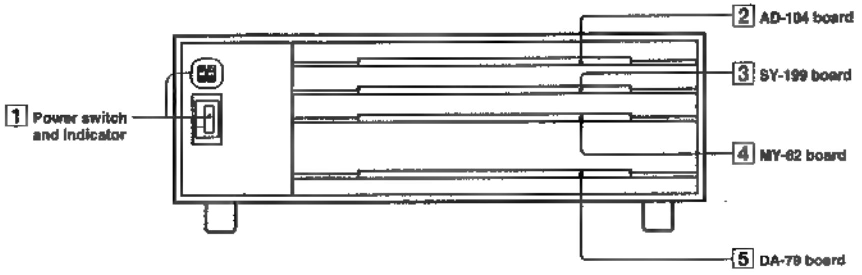
Opening the front panel

To open the front panel, unlock the screw using a screwdriver.



Note

Be sure to turn off the power switch before opening the front panel.

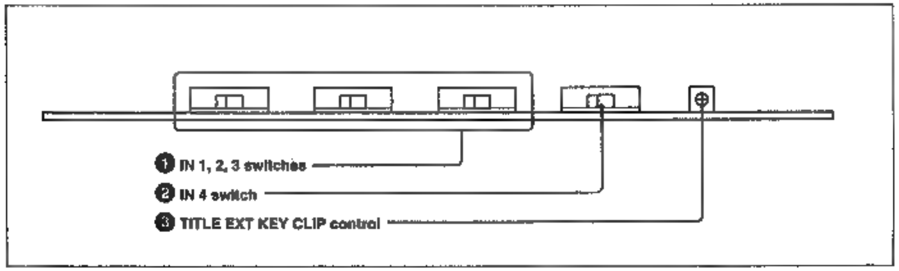


Front panel and internal boards

[1] Power switch and indicator

Turn the switch to the "I" side to turn the power on, and to the "○" side to turn the power off. When the power is on, the indicator lights.

[2] AD-104 (A/D converter) board



AD-104 board

❶ IN (input signal format select) 1, 2, 3 switches

Set these switches according to the format of the signals input to the VIDEO INPUTS 1, 2, 3 connectors on the rear panel.

COMPOSITE (left): Composite video signal
Y/C (center): S-video signal
COMPONENT (right): Betacam-format component video signal

All three switches are factory preset to COMPOSITE.

❷ IN (input signal format select) 4 switch

Set this switch according to the format of the signal input to the VIDEO INPUTS 4 connector on the rear panel.

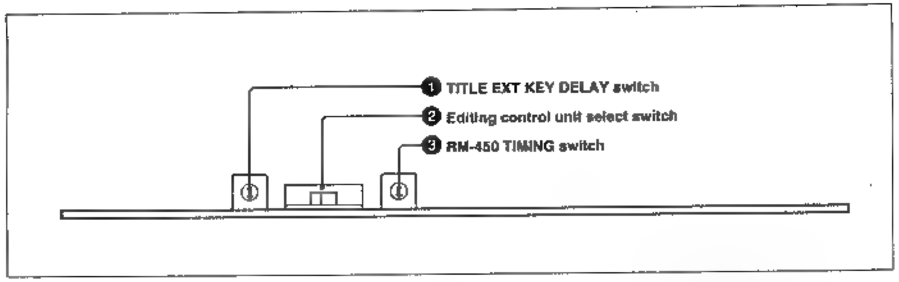
Y/R–Y/B–Y (left): Betacam-format component signal
RGB (center): RGB signal, G signal with SYNC
RGBS (right): RGB signal, G signal without SYNC
When you select RGBS format, you must input a SYNC signal to the VIDEO INPUTS 4 SYNC connector.

This switch is factory preset to Y/R–Y/B–Y.

❸ TITLE EXT KEY CLIP (external title key clipping level) control

Adjust the clipping level of the key source signal input to the EXT KEY IN connector on the rear panel.

[3] SY-199 (system control) board


❶ TITLE EXT KEY DELAY switch
❷ Editing control unit select switch
❸ RM-450 TIMING switch

SY-199 board

❶ TITLE EXT KEY DELAY (external title key delay) switch

Adjust the delay of the key source signal input to the EXT KEY IN connector on the rear panel. The delay is an offset with respect to the key fill signal. It is adjustable in 16 steps of about 70 ns per step.

❷ Editing control unit select switch

Set to the connected editing control unit.

RM-450: RM-450 Editing Control Unit
BVE-600: BVE-600 Editing Control Unit
PVE-500: PVE-500 or BVE-900/910/2000 Series editing control unit. Set the switch to this setting when using the DFS-300/300P as a stand-alone unit without connecting an editor, or when controlling it with GPI signals.

This switch is factory preset to PVE-500.

Note

This switch cannot be set with the unit powered on. Before changing the setting, turn the power switch on the processor unit off.

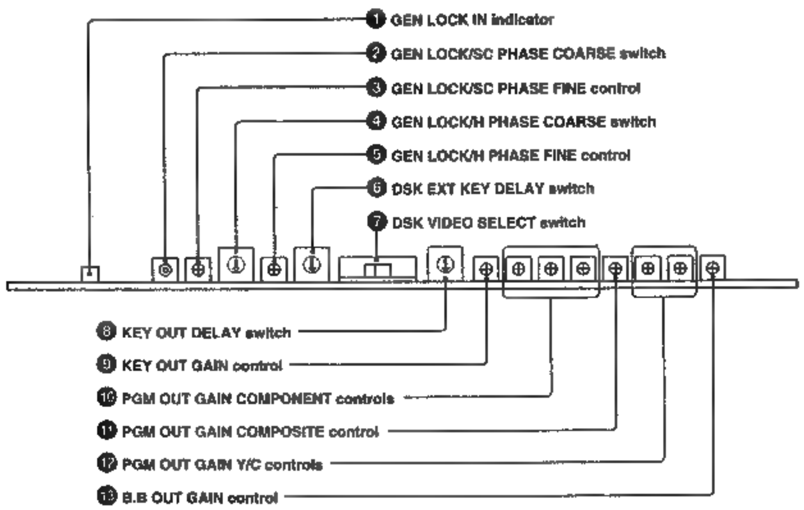
❸ RM-450 TIMING (freeze timing) switch

When using an RM-450 Editing Control Unit, set the FREEZE IN point timing. This setting is an offset in units of fields with respect to the edit IN point. It determines the point at which the background picture freezes.
Turn the switch in the + direction (9,A,..F) to delay the timing, and turn it in the – direction (7,6,..0) to advance the timing. The timing can be adjusted in steps of one field within a range of –8 to +7 fields. This switch is factory preset to 8.

[4] MY-62 board

Do not change the settings of any switches on this board.

5 DA-79 (D/A converter) board


① GEN LOCK IN indicator
② GEN LOCK/SC PHASE COARSE switch
③ GEN LOCK/SC PHASE FINE control
④ GEN LOCK/H PHASE COARSE switch
⑤ GEN LOCK/H PHASE FINE control
⑥ DSK EXT KEY DELAY switch
⑦ DSK VIDEO SELECT switch
⑧ KEY OUT DELAY switch
⑨ KEY OUT GAIN control
⑩ PGM OUT GAIN COMPONENT controls
⑪ PGM OUT GAIN COMPOSITE control
⑫ PGM OUT GAIN Y/C controls
⑬ B.B OUT GAIN control

Switches ⑥ and ⑦ are disabled unless you have installed the optional BKDF-504/504P DSK Board.

DA-79 board

① GEN LOCK IN (external sync signal input) indicator

Lights when an external sync signal (black burst signal) is input to the GEN LOCK IN connector on the rear panel.

Lit (orange): External sync signal input. The built-in sync signal generator is automatically synchronized with the external sync signal (gen-lock mode).

Not lit: No external sync signal input. The built-in sync signal generator generates the sync signal independently (internal sync mode).

② GEN LOCK/SC PHASE COARSE (sync signal subcarrier phase coarse adjustment) switch

Roughly adjusts the subcarrier phase of the signal generated by the built-in sync signal generator. Use this switch to synchronize the phase with the subcarrier phase of a reference signal input to the GEN LOCK IN connector on the rear panel. Changing the setting reverses the subcarrier phase by about 180°.

Set the switch to the opposite position if you are not able to synchronize the subcarrier phases by rotating the GEN LOCK/SC PHASE FINE control ③.

③ GEN LOCK/SC PHASE FINE (sync signal subcarrier phase fine adjustment) control

Precisely adjusts the subcarrier phase of the signal generated by the built-in sync signal generator. Use this control to synchronize the phase with the subcarrier phase of a reference signal input to the GEN LOCK IN connector on the rear panel.

④ GEN LOCK/H PHASE COARSE (sync signal horizontal phase coarse adjustment) switch

Roughly adjusts the horizontal phase of the signal generated by the built-in sync signal generator. Use this switch to synchronize the phase with the horizontal phase of a reference signal input to the GEN LOCK IN connector on the rear panel.
The phase is adjustable in 16 steps of about 280 ns per step.

⑤ GEN LOCK/H PHASE FINE (sync signal horizontal phase fine adjustment) control

Precisely adjusts the horizontal phase of the signal generated by the built-in sync signal generator, after coarse adjustment with the GEN LOCK/H PHASE COARSE switch ④.

⑥ DSK EXT KEY DELAY (external downstream key signal delay) switch

Adjusts the delay of the signal input to the DSK KEY IN connectors on the rear panel (DSK external key source signal) with respect to the signal input to the DSK VIDEO IN connectors (DSK key fill signal). The delay is adjustable in 16 steps of about 70 ns per step.

⑦ DSK VIDEO SELECT (downstream key fill signal format select) switch

Selects the format of the DSK key fill signal input to the DSK VIDEO IN connector on the rear panel.

COMPOSITE: Composite video signal

Y/R–Y/B–Y: Betacam-format component signal with luminance (Y) and color difference (R–Y, B–Y) components.

R/G/B: RGB signal

This switch is factory preset to R/G/B.

⑧ KEY OUT DELAY (output key signal delay) switch

Adjusts the delay of the signal output from the KEY OUT connector with respect to the signal output from the PGM OUT connectors.
The delay is adjustable in 16 steps of about 70 ns per step.

⑨ KEY OUT GAIN (output key signal gain) control

Adjusts the level of the signal output from the KEY OUT connector.
The adjustment range is about ±3 dB.

⑩ PGM OUT GAIN COMPONENT (program output component signal level) controls

Adjusts the level of the component video signal (Y/R–Y/B–Y) output from the 12-pin PGM OUT connectors.
The adjustment range is about ±3 dB.
The leftmost control adjusts the Y signal, the center control adjusts the R–Y signal, and the rightmost control adjusts the B–Y signal.

⑪ PGM OUT GAIN COMPOSITE (program output composite signal level) control

Adjusts the level of the composite video signal output from the BNC-type PGM OUT connectors.
The adjustment range is about ±3 dB.

⑫ PGM OUT GAIN Y/C (program output Y/C signal level) controls

Adjusts the level of the Y/C video signal output from the 4-pin PGM OUT connectors. The left control adjusts the Y signal, and the right control adjusts the C signal. The adjustment range is about ±3 dB.

⑬ B.B OUT GAIN (black burst signal output gain) control

Adjusts the level of the signal output from the BLACK BURST OUT 1, 2, 3 connectors on the rear panel.
The adjustment range is about ±3 dB.

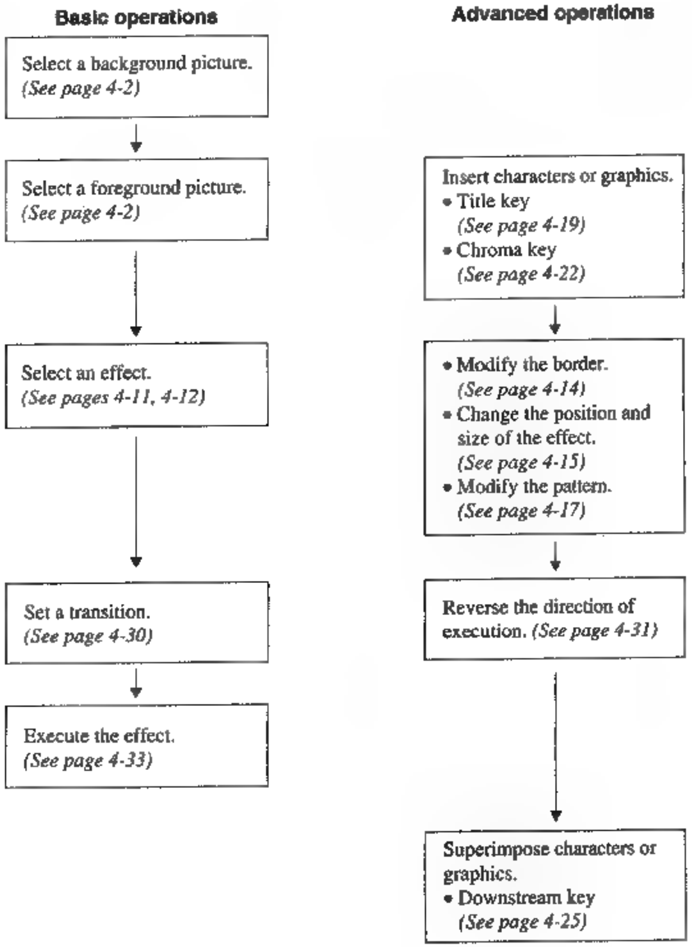
Chapter 3
Tutorial

This chapter selects two of the special effects built into the DFS-300/300P, and presents a tutorial that lets you try out the control panel as you execute the basic sequence of operations. It also discusses the unit's demonstration mode.

Sequence of Operations 3-2
Executing Special Effects 3-3
  Executing a Wipe Effect 3-3
  Executing a Picture-in-Picture Effect 3-6
Viewing the Special Effects Demonstration 3-9

Sequence of Operations

The flow chart below shows the sequence of operations in a typical editing session using the DFS-300/300P. The left side shows basic operations, and the right side shows advanced operations, which you can execute as required.
For more information about the operations, see the pages indicated in parentheses.



Basic operations

Select a background picture. *(See page 4-2)*

Select a foreground picture. *(See page 4-2)*

Select an effect. *(See pages 4-11, 4-12)*

Set a transition. *(See page 4-30)*

Execute the effect. *(See page 4-33)*

Advanced operations

Insert characters or graphics.
- Title key
  (See page 4-19)
- Chroma key
  (See page 4-22)

- Modify the border.
  (See page 4-14)
- Change the position and size of the effect.
  (See page 4-15)
- Modify the pattern.
  (See page 4-17)

Reverse the direction of execution. *(See page 4-31)*

Superimpose characters or graphics.
- Downstream key
  (See page 4-25)

Note

This chapter assumes that the editing control unit select switch in the processor unit is set to the PVE-500 position. If you set the switch to another position, some operations may need to be performed differently.

Executing Special Effects

This section introduces the basic procedures used to operate the DFS-300/300P, using as examples the wipe and picture-in-picture effects.

Executing a Wipe Effect

Using the AUTO TRANS button, we will replace the picture on the program monitor screen with another picture by executing a wipe from the upper left corner of the screen to the lower right corner.

Parameters

We will set the following four parameters at the control panel:

Background picture: The picture on the screen before the transition. In the example, it is the signal input to the VIDEO INPUTS 1 connector.

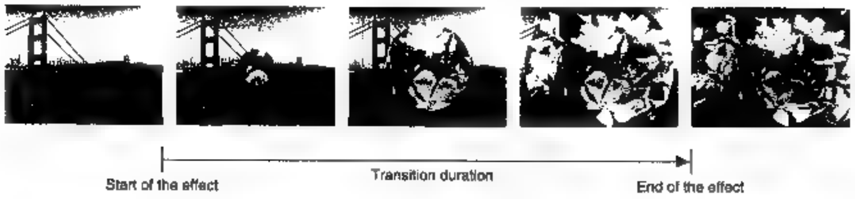
Foreground picture: The picture on the screen after the transition. In the example, it is the signal input to the VIDEO INPUTS 2 connector.

Effect: The way in which the background picture changes into the foreground picture. In the example, it is a wipe using pattern number 24.

Transition duration: Time it takes for the background picture to change into the foreground picture. In the example, it is 30 frames.

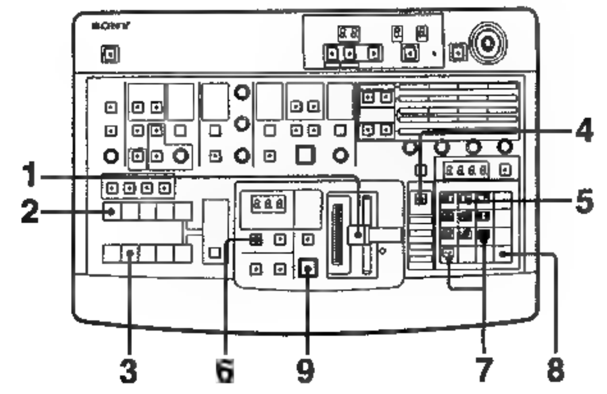
Program picture

When we execute the wipe, the picture on the program monitor screen changes as follows:



Wipe

Operation



Basic operation 1 — Wipe

Preparation

1 Pull the fader lever all the way down.

Picture selection

2 Press the BACKGROUND bus button [1].

The button lights in red, and the video signal input to the VIDEO INPUTS 1 connector is selected as the background picture.
The selected picture appears on the screen of the program monitor.

3 Press the FOREGROUND bus button [2].

The button lights in amber, and the video signal input to the VIDEO INPUTS 2 connector is selected as the foreground picture.
To check the picture on the screen of the program monitor, push the fader lever all the way up. After checking the picture, be sure to return the lever to the lowermost position.

Effect selection

4 Press the DIRECT PATTERN button, turning it on.
If the button is already lit, skip this step.

You can now select any of the 13 effect patterns assigned to the PATTERN/KEY PAD buttons by pressing the corresponding button (direct pattern select mode).

5 Press the PATTERN/KEY PAD button [8].

The button lights, and the wipe effect (pattern number 24) assigned to the button is selected. The PATTERN NUMBER display window shows "24".

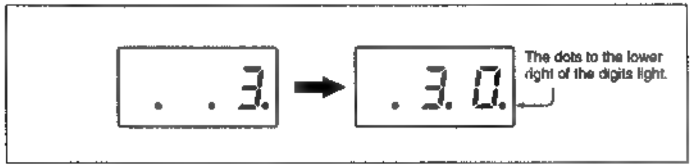
Transition duration data entry

6 Press the EFFECT button.

The button lights, and the EFFECT indicator below the TRANS RATE display window lights.

7 Press the PATTERN/KEY PAD button [3], then [0].

The TRANS RATE display window shows ".3.0.".



8 Press the ENTER button.

The dots to the lower right of the digits go out, and the value entered in step **7** is accepted as the transition duration.

Effect execution

9 Press the AUTO TRANS button.

The wipe is executed, and the foreground picture replaces the background picture.
At the end of the 30-frame transition, the FOREGROUND bus button [1] lights in amber, and the BACKGROUND bus button [2] lights in red.

Executing a Picture-In-Picture Effect

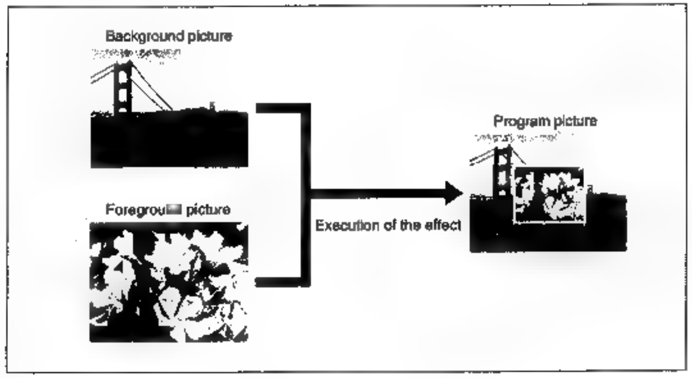
Using the fader lever, we will insert a foreground picture into the background picture.
We will also add a border around the foreground picture.

Parameters

We will set the following four parameters at the control panel:
Background picture: An internally generated color background.
Foreground picture: The video signal input to the VIDEO INPUTS 1 connector.
Effect: The picture-in-picture effect (pattern number 1100).
Border: ON.

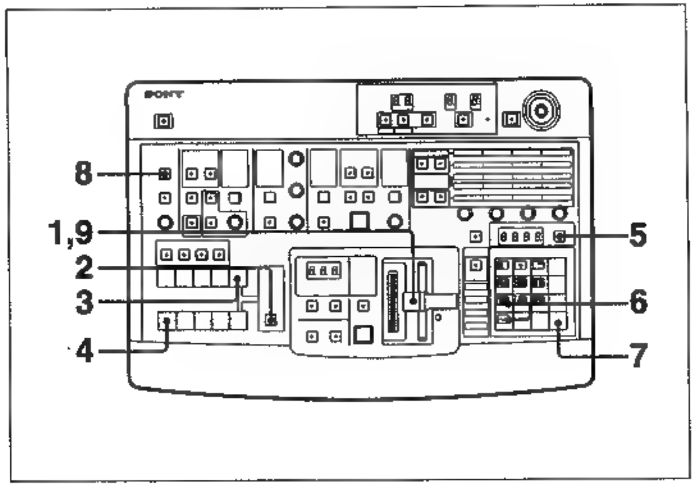
Program picture

When we execute the effect, the picture on the program monitor screen changes as follows:



Picture-in-picture

Operation



Basic operation 2 — Picture-in-picture

Preparation

1 Pull the fader lever all the way down.

Picture selection

2 Press the INT VIDEO SELECT button until the COL BKGD indicator lights.

The internally generated color background signal is selected.

3 Press the INT VIDEO button in the BACKGROUND bus row.

The button lights in red, and the internally generated color background signal is selected as the background picture.
If you wish, you can change the color or emboss pattern of the background.
For details, see "Adjusting Color Mattes" (page 4-36).

4 Press the FOREGROUND bus button 1.

The button lights in amber, and the video signal input to the VIDEO INPUTS 1 connector is selected as the foreground picture.

(Continued)

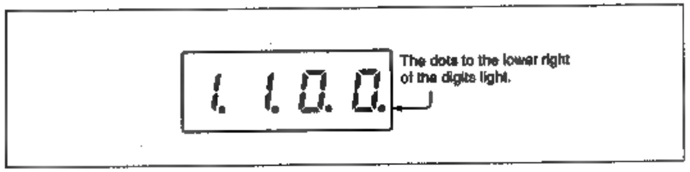
Effect selection

5 Press the SET button, turning it on.
If the button is already lit, skip this step.

You can now use the buttons in the PATTERN/KEY PAD section to enter a pattern number (pattern number entry mode).

6 Press the PATTERN/KEY PAD buttons 1, 1, 0, and 0 in that order.

The PATTERN NUMBER display window shows "1.1.0.0.".



7 Press the ENTER button.

The dots to the lower right of the digits go out, and the value entered in step **6** is accepted as the pattern number.
The INT VIDEO button in the BACKGROUND bus row and the FOREGROUND bus button 1 both light in red.

Border selection

8 Press the BORDER button.

The button lights, and borders are turned on.
If you wish, you can change the color and width of the border.
For details, see "Modifying the Edge — Border and Soft Edge" (page 4-14).

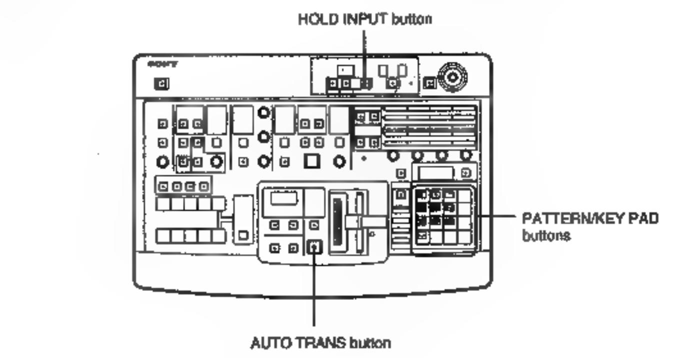
Effect execution

9 Push the fader lever up to the opposite side.

The picture-in-picture effect is executed as you move the lever. The foreground picture appears over the background picture, surrounded by a border.

Viewing the Special Effects Demonstration

The DFS-300/300P has a demonstration mode in which 100 effects stored in the unit's ROM (read only memory) are executed repeatedly. Use it to see which types of effects are available.
The demonstration uses 100 factory preset snapshots of the control panel.
To view the demonstration, connect VCRs or video cameras to the VIDEO INPUTS 1 and 2 connectors. If you have changed the setting of the editing control unit select switch *(page 2-22)* in the processor unit, power the unit off and set it to PVE-500. If the HOLD INPUT button in the SNAPSHOT section is lit, press it to extinguish it.



Buttons used in demonstration mode

To start the demonstration

Press the AUTO TRANS button while holding down the PATTERN/KEY PAD buttons 1 and 9. The 100 effects stored in ROM are executed repeatedly until you press the AUTO TRANS button again. During the demonstration, the buttons in the PATTERN/KEY PAD section light in clockwise order, and all buttons are disabled except the AUTO TRANS button.

To end the demonstration

Press the AUTO TRANS button.
The demonstration stops. The control panel is set [illegible] the settings in effect when the demonstration was interrupted.

Chapter 4
Basic Operations

This chapter explains how to prepare and execute special effects on the DFS-300/300P.
It explains how to select foreground and background pictures, how to select parameters for special effects, and how to superimpose characters and graphics.
Note that the examples in this chapter show the effects produced when the editing control unit select switch in the processor unit is in the PVE-500 position. If you set the switch to another position, the effects produced may be slightly different.

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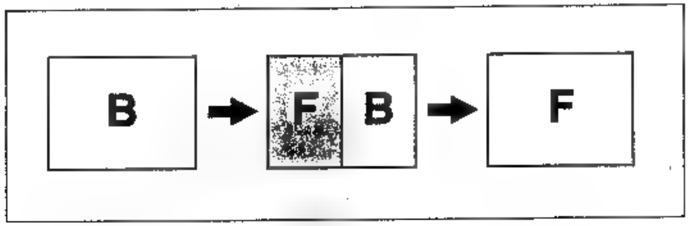
Selecting Pictures

What are foreground and background pictures?

Foreground and background in transition effects
In transition effects, the background picture is the picture on the screen at the beginning of the effect. As the transition proceeds, the background picture is gradually replaced by the foreground picture, until only the foreground picture remains.
When discussing transition effects, background pictures are sometimes called "FROM pictures", and foreground pictures "TO pictures".

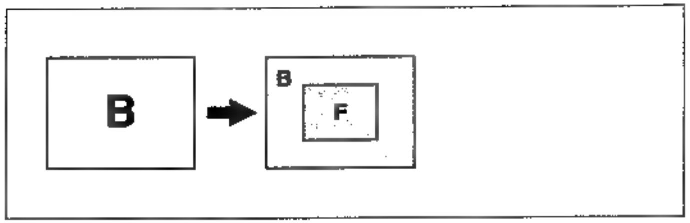
B: background picture, F: foreground picture



Transition effect — Wipe

Foreground and background in animation effects
In animation effects, digital processing is applied to remove part of the background picture and replace it with the foreground picture. Some effects use motion, so that the foreground picture seems to move around against the background. Other effects simply insert the foreground picture into the background.
When an animation effect finishes, both the background and foreground pictures are visible on the screen.

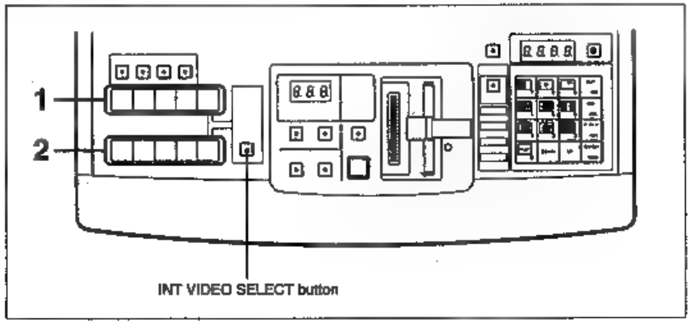
B: background picture, F: foreground picture



Animation effect — Picture-in-picture

Selecting background and foreground pictures

Select background and foreground pictures by pressing the buttons in the primary crosspoint bus section.
The buttons numbered from 1 to 4 select video signals input to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel. The INT VIDEO buttons select signals generated by one of the unit's built-in signal generators.
To select background and foreground pictures, proceed as follows.



Selecting background and foreground pictures

1 Press one of the BACKGROUND bus buttons to select the background picture.

The button lights.

2 Press one of the FOREGROUND bus buttons to select the foreground picture.

The button lights.

To identify the signals on the program monitor

Check the color of the lit BACKGROUND and FOREGROUND bus buttons. The buttons light as follows, depending on whether or not the signals they select are being output from the PGM OUT connectors on the rear panel.
Red: The signal is being output to the program monitor.
Amber: The signal is selected, but is not being output to the program monitor.

Selecting video signals for the INT VIDEO buttons

When pressed, the INT VIDEO buttons in the BACKGROUND and FOREGROUND rows select one of the following signals. Choose the desired signal by pressing the INT VIDEO SELECT button until the corresponding indicator lights.

COL BKGD: A color background signal. You can choose one out of 31 emboss patterns or a plain color background for this signal, and adjust its color.

For details, see "Selecting color background emboss patterns" below and "Adjusting Color Mattes" (page 4-36).

COL BAR: A color bar signal
GRID: A grid signal
BLACK: A black burst signal

Selecting color background emboss patterns

You can choose from among 31 emboss patterns for INT VIDEO color backgrounds, or you can select a plain color background with no emboss pattern. Proceed as follows.

1 Press the INT VIDEO SELECT button to light the COL BKGD indicator.

If the indicator is already lit, skip this step.

2
- **To select an emboss pattern,** press the UP or DOWN button in the PATTERN/KEY PAD section while pressing one of the BACKGROUND or FOREGROUND bus buttons. Each time you press the UP or DOWN button, the next or previous pattern is selected.
  Keep pressing the button until the desired pattern is displayed on the program monitor.
- **To select a plain color background,** press the P IN P/RST button in the PATTERN/KEY PAD section while pressing one of the BACKGROUND or FOREGROUND bus buttons.

Monitoring the execution of an effect

After selecting the background picture, the foreground picture, and an effect, move the fader lever to the opposite side.
This allows you to check the kind of picture that will be obtained when the effect is executed by viewing it on the program monitor.

Choosing a DFS-300/300P Effect

The DFS-300/300P DME Switcher has about 350 built-in special effects. This section discusses the various types of effects, and describes the effects assigned to the buttons in the PATTERN/KEY PAD section of the control panel.

Types of Effects

The effects provided by the DFS-300/300P are classified into groups with names such as "Wipe" and "Picture-in-picture". Each effect has a unique pattern number. Patterns with numbers above 999 are DME (digital multi effects) patterns.

For more information about pattern names and numbers, see "Effect Pattern Image List" (page A-11).

Transition effects and animation effects

Another way of classifying effects is to divide them as follows into two broad categories, depending on how they move and the appearance of the screen after they finish.

Transition effects: The foreground picture completely replaces the background picture. When the effect finishes, the lit BACKGROUND and FOREGROUND bus buttons change in color from red to amber, or from amber to red.

Animation effects: The foreground picture is inserted into the background picture. Both the background and foreground pictures remain visible after the effect finishes. There is no change in the color of the BACKGROUND and FOREGROUND bus buttons.

For more information about the category to which individual patterns belong, see "Effects Classified by Direction Type" (page A-6).

Attributes and user-modifiable effects

You can change the attributes of some of the basic effect patterns, as follows.

- Add borders between the background and foreground pictures, or blur the border lines.
- Change the position or size of the pattern.
- Modify the effect pattern itself by specifying effect control parameters. Effects that accept effect control parameters are called **user-modifiable effects**.

For more information about the attributes that can be added to effects, see "Effect Parameters" (page A-4). The parameters of user-modifiable effects are listed in "Effect Control Parameters" (page A-7).

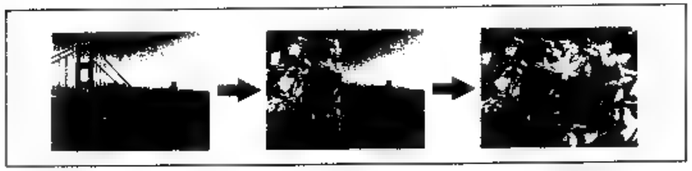
Effects assigned to the PATTERN/KEY PAD buttons

The following pages show the effects you can select simply by pressing one of the buttons in the PATTERN/KEY PAD section (direct pattern select mode). The assignments are factory preset, but you can assign other effects to buttons 0 through 9.

For more information about assigning effects to keypad buttons, see "Changing Direct Pattern Assignments" (page 5-2).

7 button

Pattern number: 1 Effect type: Wipe Motion type: Transition
Parameters: Border, soft edge

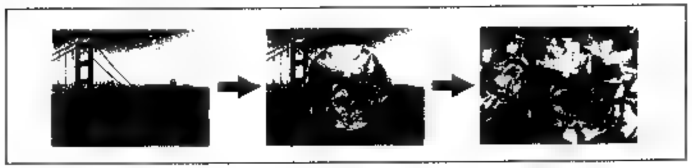


Pattern number 1 — Wipe

The foreground picture appears at the left side of the screen and gradually moves to the right side, replacing the background picture.

8 button

Pattern number: 24 Effect type: Wipe Motion type: Transition
Parameters: Border, soft edge, X location, Y location

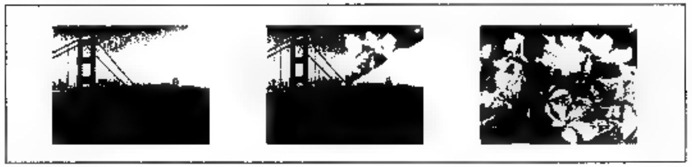


Pattern number 24 — Wipe

The foreground picture appears in a circle at the center of the screen. The circle grows larger until it replaces the background picture.

9 **button**

Pattern number: 104 Effect type: Rotary wipe Motion type: Transition
Parameters: Border, soft edge

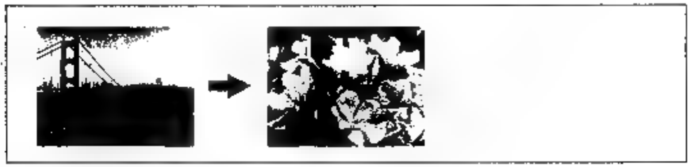


Pattern number 104 — Rotary wipe

The foreground picture appears at 12 o'clock and rotates in the clockwise direction, replacing the background picture.

CUT INS **button**

Pattern number: 1059 Effect type: Cut Motion Type: Transition
Parameters: None

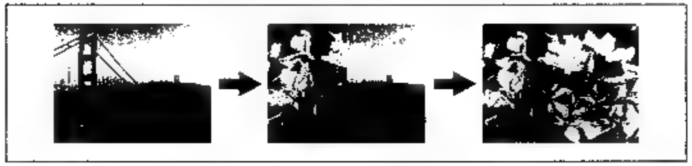


Pattern number 1059 — Cut

The background picture changes instantly into the foreground picture.

4 **button**

Pattern number: 700 Effect type: Matrix wipe Motion type: Transition
Parameters: Border

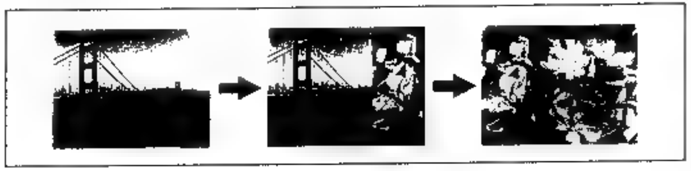


Pattern number 700 — Matrix wipe

The foreground picture appears in the upper left corner of the screen and replaces the background picture as it moves across the screen in the manner depicted on the button.

5 **button**

Pattern number: 1300 Effect type: Slide Motion type: Transition
Parameters: Border

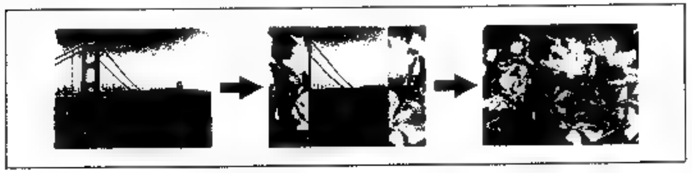


Pattern number 1300 — Slide

The foreground picture appears at the right side of the screen and slides in smoothly to replace the background picture.

6 **button**

Pattern number: 1330 Effect type: Split slide Motion type: Transition
Parameters: Border

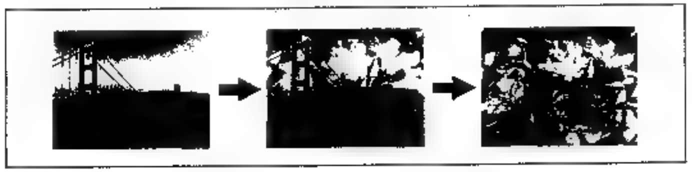


Pattern number 1330 — Split slide

The foreground picture replaces the background picture as it slides in from the left and right sides of the screen.

MIX DEL **button**

Pattern number: 1080 Effect type: Mix Motion type: Transition
Parameters: None

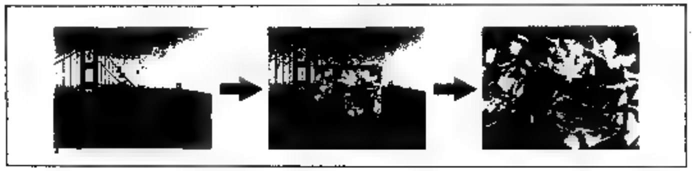


Pattern number 1080 — Mix

The foreground picture fades in, and the background picture fades out.

1 **button**

Pattern number: 1500 Effect type: Compression Motion type: Transition
Parameters: Border

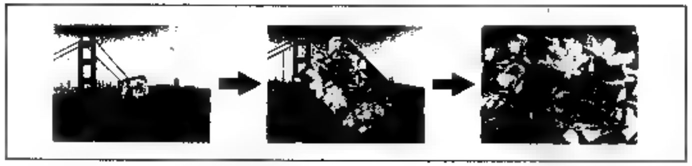


Pattern number 1500 — Compression

The foreground picture appears in the center of the screen, and replaces the background picture as it expands.

2 **button**

Pattern number: 1630 Effect type: Two-dimensional rotation
Motion type: Transition Parameters: Border

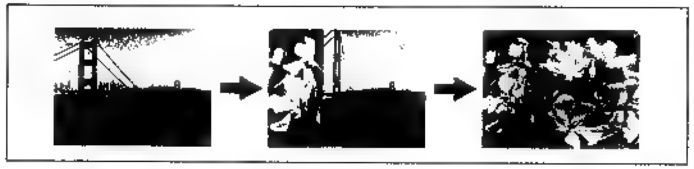


Pattern number 1630 — Two-dimensional rotation

A rotating foreground picture appears in the center of the screen, and replaces the background picture as it expands.

3 **button**

Pattern number: 1850 Effect type: Album page turn
Motion type: Transition Parameters: Border

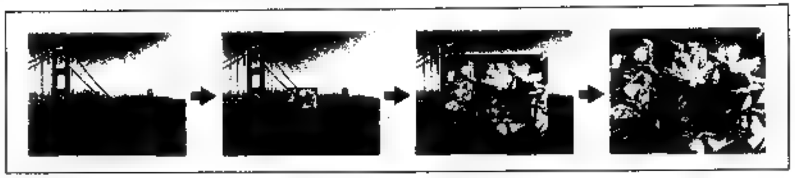


Pattern number 1850 — Album page turn

The background picture splits down the middle like a book, and the left-hand page turns toward the right, revealing a foreground page. If you install the optional BKDF-301/301P board, this effect becomes more realistic because perspective is added as the page turns.

P IN P RST **button**

Pattern number: 1100 Effect type: Picture-in-picture Motion type: Animation
Parameters: Border, X location, Y location

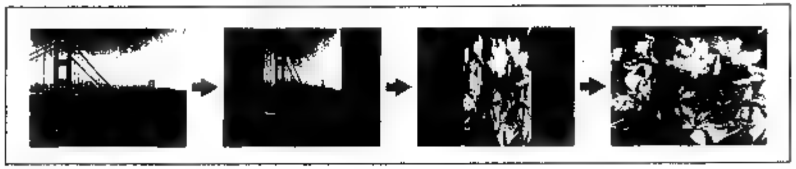


Pattern number 1100 — Picture-in-picture

The foreground picture is inserted into the background picture.

FLIP 0 **button**

Pattern number: 1900 Effect type: Two-dimensional flip
Motion type: Transition Parameters: Border



Pattern number 1900 — Two-dimensional flip

The foreground picture rotates around an axis in the center of the screen, revealing the foreground picture. An internally generated effect matte appears during the transition.

Selecting Effects With Pattern Buttons

In direct pattern select mode, you can select one of 13 commonly used effect patterns simply by pressing a button in the PATTERN/KEY PAD section. Each of the buttons (except the UP, DOWN, and ENTER buttons) selects a factory-assigned pattern, which is shown on the key top and illustrated in "Effects assigned to the PATTERN/KEY PAD buttons" *(page 4-6)*.
You cannot change the patterns assigned to the P IN P/RST, MIX/DEL, and CUT/INS buttons. But you can assign different patterns to the numeric buttons (0 through 9).

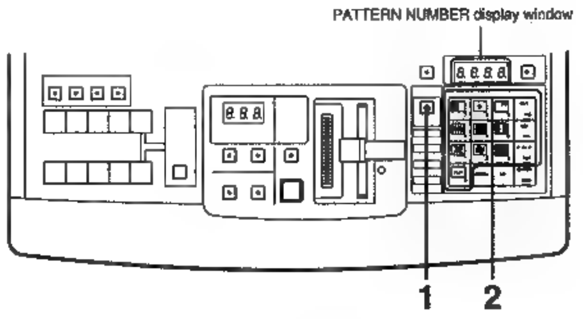
For details, see "Changing Direct Pattern Assignments" (page 5-2).

Operation

To select a pattern in direct pattern select mode, proceed as follows.

Note

If the EDIT button in the USER PROGRAM section *(see page 2-16)* is lit, press it to extinguish it before carrying out this procedure.



Selecting a pattern directly

1. Press the DIRECT PATTERN button.

   The button lights, and the unit enters direct pattern select mode.

2. Press the button for the desired pattern.

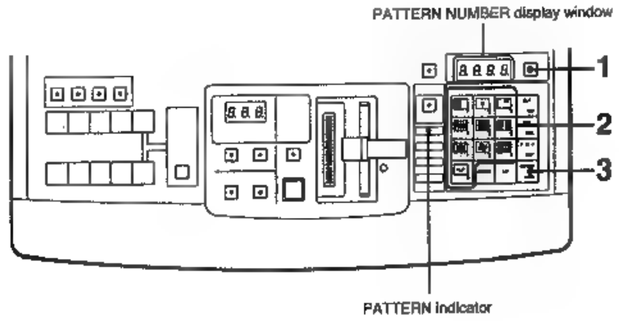
   The button lights and the effect assigned to that button is selected. The pattern number appears in the PATTERN NUMBER display window.

Selecting Effects With Pattern Numbers

In pattern number entry mode, you can select any effect by entering its pattern number.

Operation

To select a pattern in pattern number entry mode, proceed as follows.



Entering a pattern number

1. Press the SET button.

   The button lights, the PATTERN indicator lights, and the unit enters pattern number entry mode.

2. Enter the pattern number with the numeric keys (0 to 9) in the PATTERN/KEYBOARD section.

   For the pattern numbers of all built-in effects, see "Effect Pattern Image List" (page A-11).

   The pattern number appears in the PATTERN NUMBER display window. The dots next to the digits light to inform you that the unit is in data entry mode.

3. Press the ENTER button.

   The dots next to the digits go out, and the pattern is selected.

If you enter a wrong number

Press the P IN P/RST button to reset the number in the PATTERN NUMBER display window to 0. Then enter the correct number.

Notes

- If you enter a number that is not assigned to any pattern, the number changes automatically to the next higher pattern number. However, all numbers above 9309 change to 1.
- Numbers from 3000 to 8999 are reserved for use by the system. A warning tone sounds if you press ENTER after entering one of these numbers.

To select a pattern number with the UP and DOWN buttons

You can select a pattern number by incrementing or decrementing the number currently displayed in the PATTERN NUMBER display window. Press the UP button to add 1 to the number, or press the DOWN button to subtract 1.
Keep the UP or DOWN button pressed to increment or decrement the number continuously.

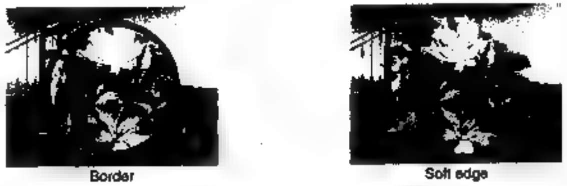
Modifying the Edge — Border and Soft Edge

Some effects allow you to add a border at the boundary between the background and foreground pictures, or add a soft edge to blur the boundary line.

Note

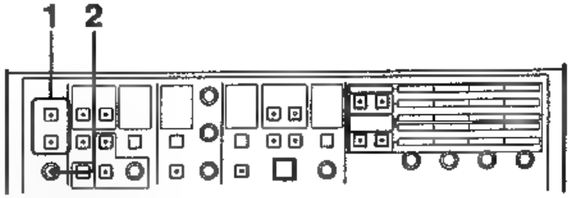
You cannot modify the edge of some effects. A warning tone sounds if you carry out the following procedure after selecting such an effect.

See "Effect Parameters" (page A-4) for the effects that can be combined with borders and soft edges.



Operation

To add a border or soft edge, proceed as follows.



Modifying the edge of an effect

1. Press the BORDER button to add a border, or the SOFT button to add a soft edge.

   The button lights. If you pressed BORDER, you can also specify the border color.

   For details, see "Adjusting Color Mattes" (page 4-36).

2. Rotate the CONTROL knob.
   - If you pressed BORDER in step **1**, rotating the knob adjusts the width of the border.
   - If you pressed SOFT in step **1**, rotating the knob adjusts the softness of the edge.

Changing the Location and Size of a Pattern — Location (X), (Y), (Z)

Some effects allow you to change the size of the effect pattern and the location where it is inserted into the background picture.

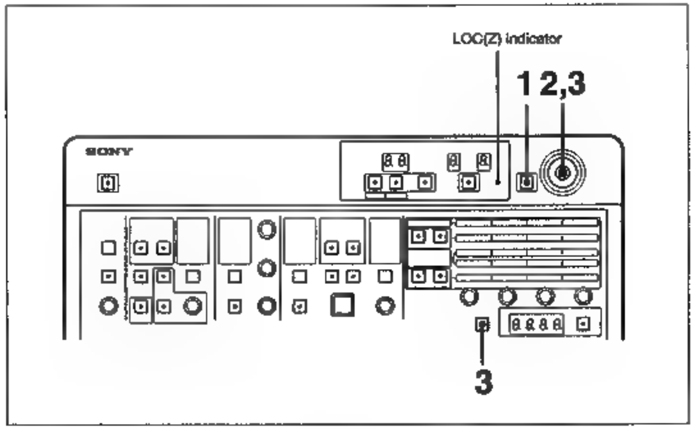
Note

You cannot change the location and size of some effects. A warning tone sounds if you carry out the following procedure after selecting such an effect.

You can change the location and size of patterns that have X, Y, and Z parameters. For details, see "Effect Parameters" (page A-4).

Operation

To change the location and size of a pattern, proceed as follows.



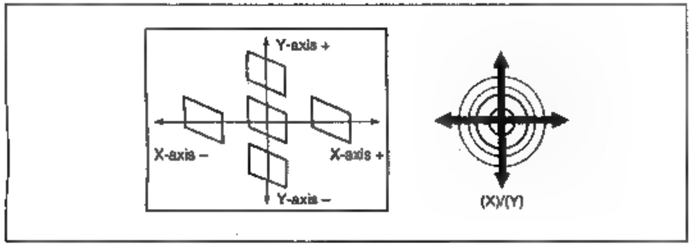
Changing the location and size of a pattern

1 Press the LOCATION button.

The button lights.

2 Move the (X)(Y)/(Z) joystick to change the pattern location.

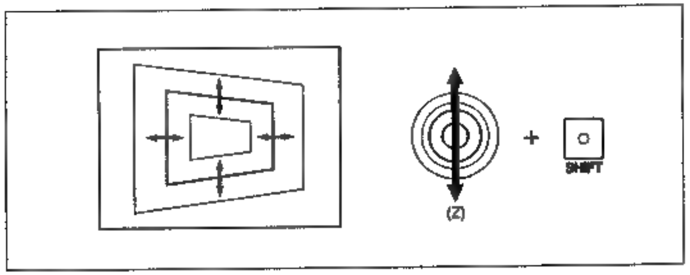
Move the joystick horizontally to change the X-axis location, and vertically to change the Y-axis location.



(Continued)

3 If the LOC(Z) indicator is lit, change the size (Z-axis position) of the effect pattern by moving the (X)(Y)/(Z) joystick vertically while pressing the SHIFT button.

The LOC(Z) indicator lights automatically when you select a pattern that has a Z-axis parameter. If it is not lit, you cannot change the pattern size.



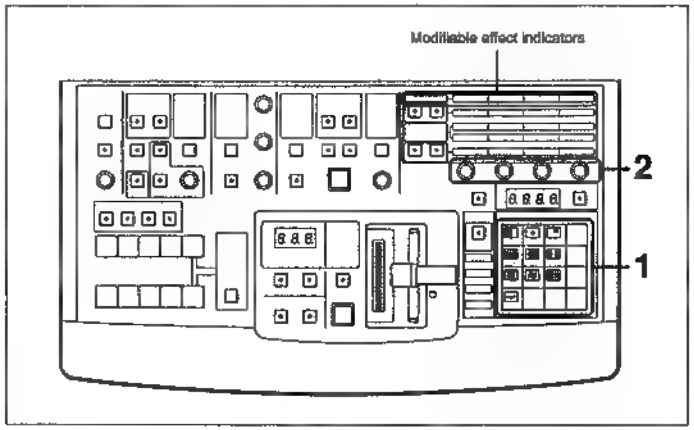
Modifying a Pattern — User-Modifiable Effects

Some patterns have effect control parameters that allow you to change them in various ways. Such effects are called user-modifiable effects. The parameters vary with each effect.

For details, see "Effect Parameters" (page A-4).

Operation

To change effect control parameters, proceed as follows.


Modifiable effect indicators
2
1

Modifying an effect pattern

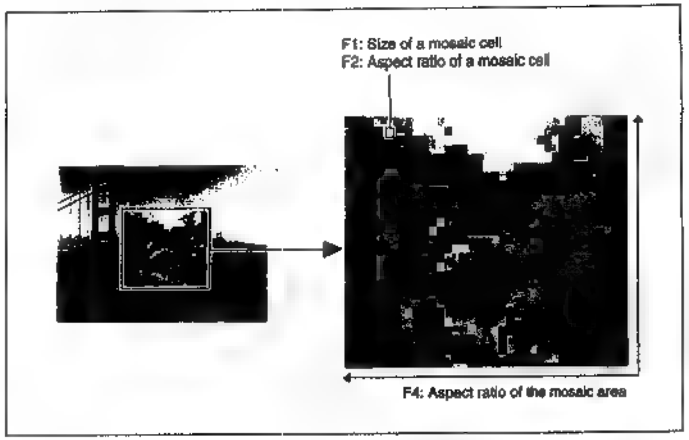
1. Refer to the table "Effect Parameters" on page A-4 and select a user-modifiable effect.

   The modifiable effect indicators in the EFFECTS CONTROL section light. The four knobs below the indicators correspond to indicators F1 through F4. For example, if indicator F1 is lit, you can adjust parameter F1 by rotating the leftmost knob.

2. Rotate the knobs to adjust the parameters as necessary.

Example of a user-modifiable effect

Pattern number: 1016 Effect type: Variable mosaic


F1: Size of a mosaic cell
F2: Aspect ratio of a mosaic cell
F4: Aspect ratio of the mosaic area

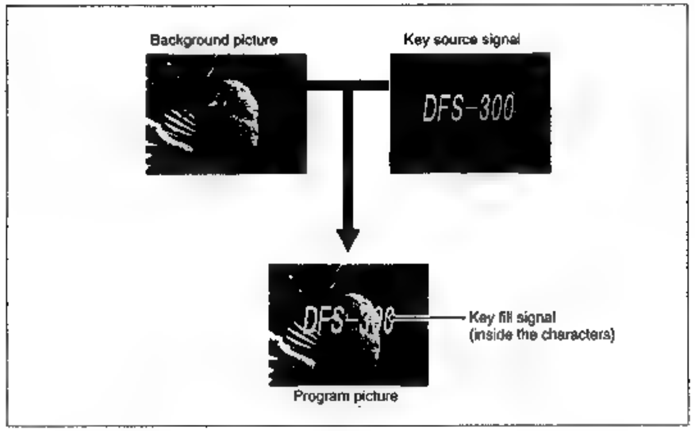
Parameters of variable mosaic effect (1016)

Superimposing Characters and Graphics 1 — Title Key

Key effects allow you to insert characters and graphics into a background picture. There are two ways to determine the shape of the material to be inserted: luminance key, which uses the brightness of the characters or graphics, and chroma key, which uses their color.

Luminance key

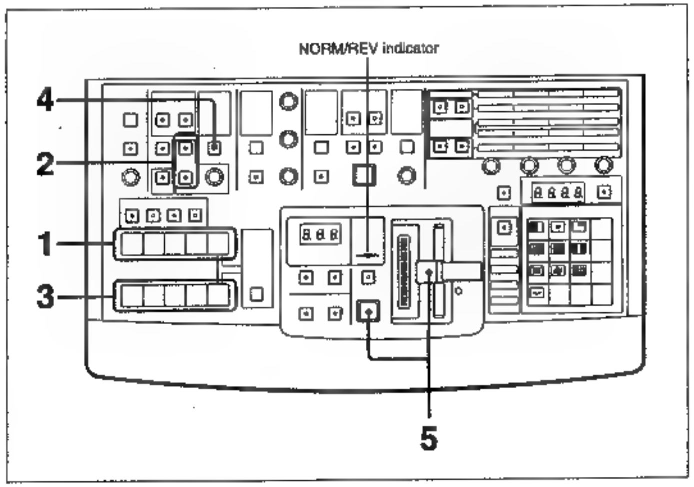
Luminance-key inserts characters or graphics into a background by detecting the bright portions in a key source signal. This unit supports two types of luminance key: a luminance self-key, which generates a key source signal from the video signals input to the VIDEO INPUTS connectors, and an external key, which uses the signals input to the EXT KEY IN connector as the key source.



Luminance key

Operation

To insert a title key into a background picture, proceed as follows.



Inserting a luminance key

1 Press a BACKGROUND bus button, turning it on, to select the background.

2 Select the key source signal (the signal containing the characters or graphics).
- **To use a video signal input to the VIDEO INPUTS connectors (self-key mode),** press the LUM KEY button, turning it on.
  The NORM/REV indicator in the EFFECTS TRANSITION section lights.
  The unit enters self-key mode, in which key source signals are generated from video input signals.
- **To use a signal input to the EXT KEY IN connector (external key mode),** press the EXT KEY button, turning it on.
  The NORM/REV indicator in the EFFECTS TRANSITION section lights.
  The unit enters external key mode.

3 If you selected self-key mode in step **2**, press a FOREGROUND bus button to select the key source signal.
Skip this step if you selected external key mode in step **2**.

4 Press the FILL button to select the signal that fills the empty areas cut out by the characters or graphics.

FRGD BUS: The video selected with the FOREGROUND bus buttons (in self-key mode, the signal that contains the key source signals).

Notes

- In external key mode, the video signals selected by the FOREGROUND bus buttons must be synchronized with the external key source signal.
- In external key mode, you cannot select a key fill signal with the FOREGROUND bus INT VIDEO button.

BORD MAT: A border matte

EFF MAT: An effect matte

When you select a border matte or an effect matte, you can adjust the color of the matte.

For details, see "Adjusting Color Mattes" (page 4-36).

5 Select and execute an effect.

For details, see "Executing the Effect" (page 4-33).

The title key appears against the background. The inserted characters or graphics are subjected to the selected effect.

Note

Some effects cannot be used in title keys.

For details, see "Effect Parameters" (page A-4).

To leave luminance key mode

Press the LUM KEY or EXT KEY button. The button goes out, and the unit leaves luminance key mode.

To adjust the outlines of inserted characters or graphics

In self-key mode, adjust the outlines of inserted characters or graphics by rotating the CLIP knob.

In external key mode, adjust the outlines of inserted characters or graphics with the TITLE EXT KEY CLIP control *(see page 2-21)* on the processor unit's internal AD-104 board.

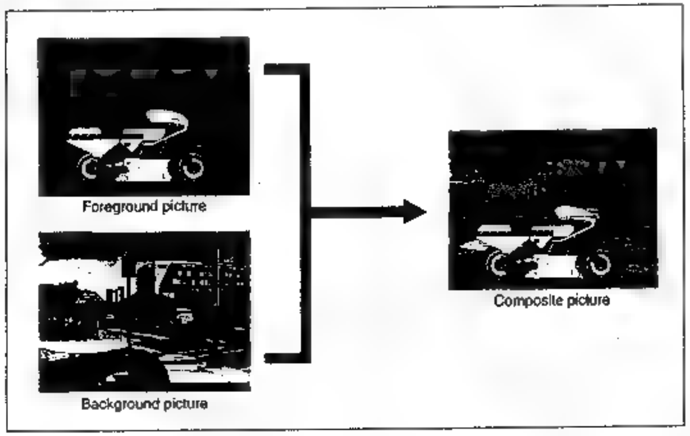
To invert the polarity of key source signals

Press the KEY INV button so that it lights or goes out, according to the polarity of the key source signals.

- **For white characters on a black background:** Press the KEY INV button so that it goes out.
- **For black characters on a white background:** Press the KEY INV button so that it lights.

Chroma Key

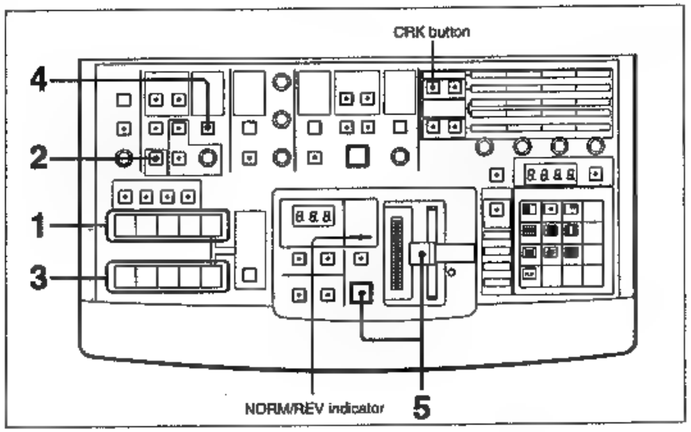
Chroma key inserts fill signals into background video by comparing the signals selected with the FOREGROUND bus buttons to a specified color. Prepare a chroma key source picture showing a subject against a backdrop that consists of a single, highly saturated color (normally blue).



Chroma key

Operation

To insert a chroma key into a background picture, proceed as follows.



Inserting a chroma key

1 Press a BACKGROUND bus button, turning it on, to select the background.

2 Press the CHROMA KEY button.

The button lights, and the unit enters chroma key mode. The CRK button in the EFFECTS CONTROL section and the NORM/REV indicator in the EFFECTS TRANSITION section light.

3 Press a FOREGROUND bus button, turning it on, to select the key source signal (the signal containing the characters and graphics).

4 Press the FILL button to select a fill signal to insert into the subject area cut out by the key source signal.
FRGD BUS: The video selected with the FOREGROUND bus buttons.
BORD MAT: A border matte
EFF MAT: An effect matte
When you select a border matte or an effect matte, you can adjust the color of the matte.

For details, see "Adjusting Color Mattes" (page 4-36).

5 Select and execute an effect.

For details, see "Executing the Effect" (page 4-33).

The picture synthesized by the chroma key appears on the screen.

Note

Chroma key signals cannot be inverted. A warning tone sounds if you press the KEY INV button.

To adjust chroma key outlines

1 Press the CRK button in the EFFECTS CONTROL section.

Skip this step if the button is already lit.

2 Rotate the parameter ajustment knobs below the CLIP and HUE indicators.
- Rotate the CLIP knob to adjust the clipping level, so that inserted characters or figures have sharper outlines.
- Rotate the HUE knob so that the colored backdrop in the key source signal picture is entirely replaced by the background picture.

To leave chroma key mode

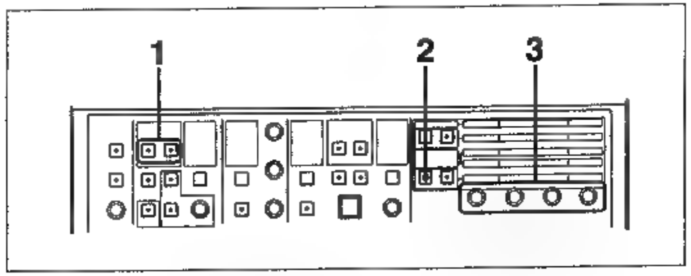
Press the CHROMA key button to extinguish it.

To turn color cancellation off

When you select chroma key mode, a color cancellation function is activated to smooth the outlines of inserted video signals by changing peripheral colors to gray. To turn this function off, press the CHROMA KEY button while pressing one of the buttons used to select luminance key (either LUM KEY or EXT KEY). If you turn color cancellation off, keying is performed on the basis of both color and luminance.

Mask — Hiding Part of a Title

You can place a rectangular mask over unnecessary parts of title key signals. The mask is inserted into the background.
Masks can be used with both chroma keys and luminance keys.



Masking part of a title key

1 Press one of the MASK buttons in the TITLE section, turning it on.
NORMAL: Mask the part outside of the rectangle.
INVERT: Mask the part inside of the rectangle.

2 Check to be sure that the TITLE MASK button and indicators in the EFFECTS CONTROL section are lit.
If they are not lit, press the TITLE MASK button to turn them on.

3 Rotate the parameter adjustment knobs to specify the rectangle.

The four knobs adjust, from left, the LEFT, RIGHT, TOP, and BOTTOM edges of the rectangle.

To stop masking

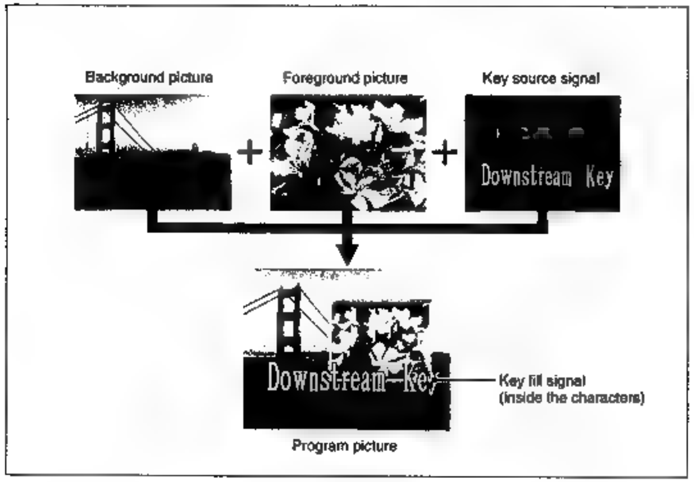
Press the MASK button again to extinguish it.

Superimposing Characters and Graphics 2 — Downstream Key

Unlike title key, downstream key allows you to insert characters and graphics into a picture that is already made up of background and foreground pictures. The name downstream key (often abbreviated as DSK) refers to the fact that insertion of the third picture takes place in the final stages of processing, after effects have been applied to the other pictures.

Note

To use the downstream key functions, you must install the optional BKDF-504/504P DSK board.

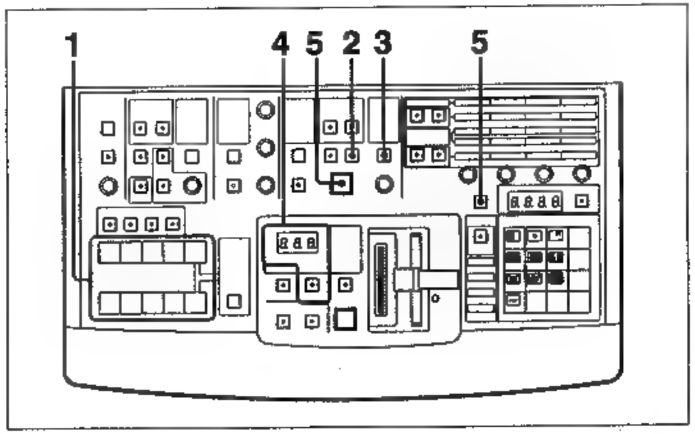


Downstream key

Operation

To insert a downstream key, proceed as follows.

See "Key Signal Connections" (page 7-3) for information about connecting the key source and key fill signals.



Inserting a downstream key

1. Create a picture into which to insert the downstream key.
   Select background and foreground pictures, and execute an effect.

2. Select a source for the DSK key signal, which contains the characters or graphics.
   - **To use the signal input to the DSK KEY IN connector as the DSK key source (external key mode),** press the EXT KEY button to light it.
   - **To use a signal input to the DSK VIDEO IN connector as the DSK key source (self-key mode),** press the EXT KEY button to extinguish it. The DSK source signal is generated from the luminance signal of the video input to the DSK VIDEO IN connector.

3. Press the FILL button to select the signal that fills the empty areas cut out by the characters or graphics.
   DSK VIDEO: The signal input to the DSK VIDEO IN connector.
   DSK MAT: The internal DSK matte.
   NONE: No fill signal (border only).

   Note

   If you select NONE, the BORDER button in the DOWNSTREAM KEYER section turns on. If you turn the BORDER button off, the downstream key will not appear on the screen.

   For more information about DSK borders, see "Adding a downstream key border" (page 4-28).

4 For a fade-in effect, set an optional transition duration.
Skip this step if you want an instantaneous insertion.

For more information about setting the duration, see "Setting the Transition Duration" (page 4-30).

5
- **If you selected a fade-in effect,** press the DSK MIX/DSK CUT button alone.
- **If you did not select a fade-in effect,** press the DSK MIX/DSK CUT button while pressing the SHIFT button.

The downstream key appears on the screen. The DSK MIX/DSK CUT button lights in amber during a fade-in transition, and lights in red when the insertion is complete.

To remove the downstream key

Press the same button(s) you pressed to insert the key.

- **If you selected a fade-in effect,** press the DSK MIX/DSK CUT button alone to fade out the downstream key using the same transition duration.
- **If you did not select a fade-in effect,** press the DSK MIX/DSK CUT button while pressing the SHIFT button to remove the downstream key instantly.

When the downstream key is removed, the DSK MIX/DSK CUT button turns off.

To adjust downstream key outlines

If the outlines of the inserted characters or graphics are unclear, adjust them by rotating the CLIP/GAIN knob.

- **To adjust the clipping level (threshold luminance level),** rotate the CLIP/GAIN knob.
- **To adjust the gain (sharpness of the outline),** rotate the CLIP/GAIN knob while pressing the SHIFT button in the keypad section.

To invert the polarity of downstream key source signals

Press the KEY INV button so that ■ lights or goes out, according to the polarity of the key source signals.

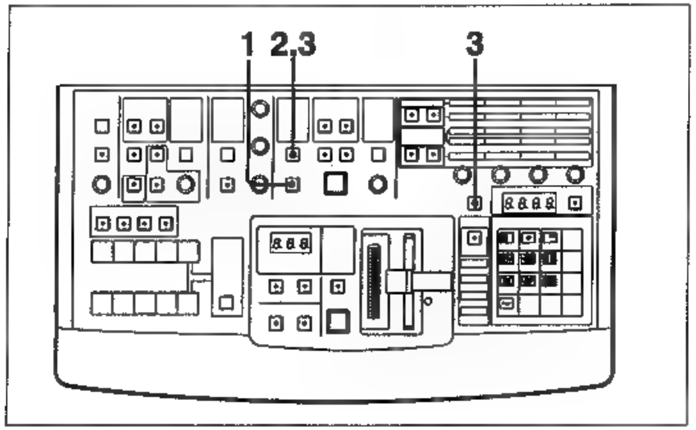
- **For white characters on a black background:** Press the KEY INV button so that it goes out.
- **For black characters on a white background:** Press the KEY INV button so that it lights.

Adding a downstream key border

You can add a border around the inserted characters or graphics, and adjust the color of the border.

For details about adjusting the color, see "Adjusting Color Mattes" (page 4-36).

To add a downstream key border, proceed as follows.



Adding a downstream key border

1 Press the BORDER button, turning it on.

2 Press the TYPE/POSITION button until the indicator for desired border type lights.
WIDE BORD: Wide border
NARW BORD: Narrow border
DROP BORD: Drop border (like a background shadow)
DOUBLE: Double border (combination of narrow and drop borders)

3 If you selected a drop or double border in step **2**, you can change its position. Press the TYPE/POSITION button while pressing the SHIFT button. Each press of the button changes the position of the border relative to inserted characters or graphics, in the order upper left → upper right → lower right → lower left.

Note

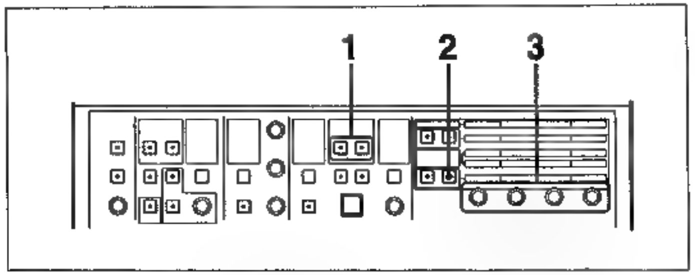
The positions of wide and narrow border cannot be changed.

To remove the border

Press the BORDER button to extinguish it.

Masking part of a downstream key

You can place a rectangular mask over unnecessary parts of a downstream key.



Masking part of a downstream key

1. Press one of the MASK buttons, turning it on.
   NORMAL: Mask the part outside of the rectangle.
   INVERT: Mask the part inside of the rectangle.

2. Check to be sure that the DSK MASK button and indicators in the EFFECTS CONTROL section are lit.
   If they are not lit, press the DSK MASK button to turn them on.

3. Rotate the parameter adjustment knobs to specify the rectangle.
   The four knobs adjust, from left, the LEFT, RIGHT, TOP, and BOTTOM edges of the rectangle.

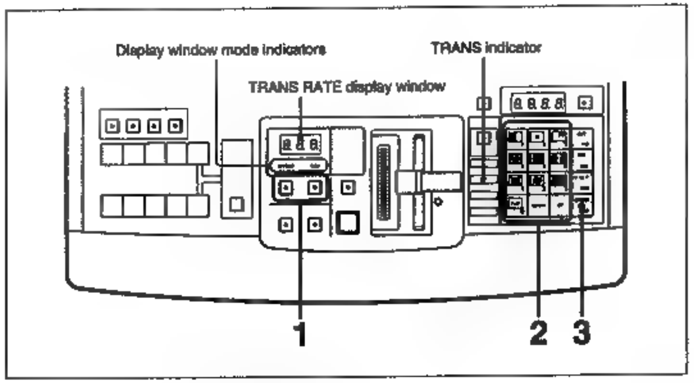
To stop masking
Press the MASK button again to extinguish it.

Setting a Transition

Setting the Transition Duration

The transition duration is the amount of time from the beginning to the end of an effect, expressed in units of frames (30 frames per second for DFS-300/25 frames per second for DFS-300P). You can set transition durations to any number up to 999, and set separate durations for effects and downstream keys.

Operation



Setting the transition duration

1. - **To set an effect transition duration,** press the EFFECT button.
   - **To set a downstream key transition duration,** press the DSK button.

   The button lights, a display window mode indicator (EFFECT or DSK) lights, and the TRANS indicator lights.

   Note

   If the EDIT button in the USER PROGRAM section *(see page 2-16)* is lit, press it to extinguish it. You cannot set a transition duration while the EDIT button is lit.

2. Using the numeric buttons (0 to 9), enter a duration from 0 to 999 frames.

   The entered value appears in the TRANS RATE display window, and the dots next to the digits light. You can increment or decrement the value by pressing the UP or DOWN button.

3. Press the ENTER button.

   The entered duration is accepted, and the dots next to the digits go out.

If you enter an incorrect value
Press the P IN P/RST button to reset the value to 0, then enter the correct value.

Freezing a background picture

Before executing an effect, press one of the FREEZE buttons in the EFFECTS TRANSITION section.
FIELD: The background freezes in field freeze mode (1/2 of a frame).
FRAME: The background freezes in frame freeze mode.
The button lights, and the background freezes at the field or frame at the beginning of an effect.
Normally you will use this button to freeze the background picture. But if you have selected an animation effect you can also freeze the foreground picture.

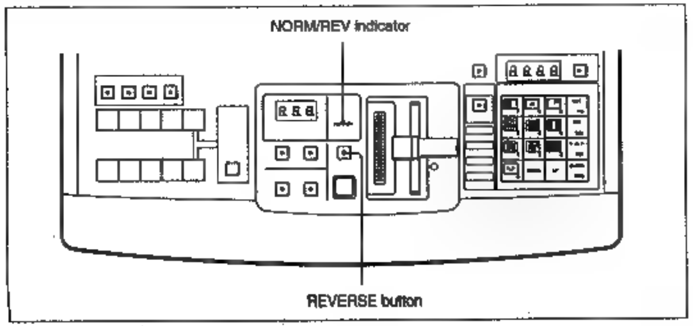
For details, see "Additional Functions" (page A-28).

To release the freeze
Press the button you pressed to freeze the picture, turning it off.

To freeze the background at any time
Press the FIELD or FRAME button while pressing the SHIFT button in the keypad section.

Setting the Transition Direction

Transition-type effects can be executed in two directions: the normal direction, in which the foreground picture replaces the background picture; and the reverse direction, in which the background picture replaces the foreground picture.
To execute a transition-type effect in the reverse direction, press the REVERSE button, turning it on. To return to normal direction, press the REVERSE button again to extinguish it.
Animation-type effects are also executed in both directions, but the direction changes automatically each time the effect is repeated, and the REVERSE button lights and goes out automatically. The NORM/REV indicator lights to show that you have selected such an effect. 1)



Setting the transition direction

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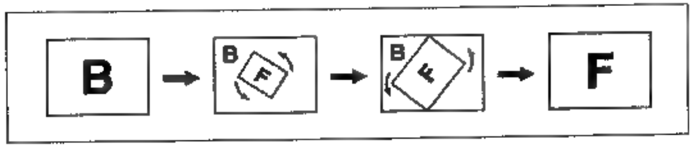
1) The NORM/REV indicator does not light if you have set the processor unit's editing control unit select switch *(see page 2-22)* to RM-450 or BVE-600.

Transition direction in transition-type effects

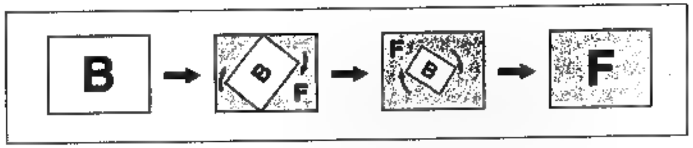
In the figures below, B represents the background picture and F represents the foreground picture.

Normal direction (REVERSE button not lit)



Normal direction of effect pattern 1630

Reverse direction (REVERSE button lit)

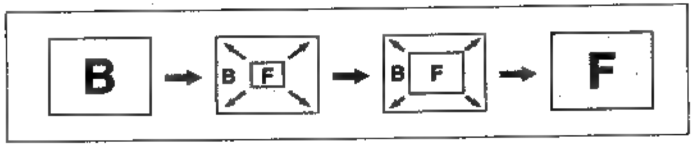


Reverse direction of effect pattern 1630

Transition direction in animation-type effects

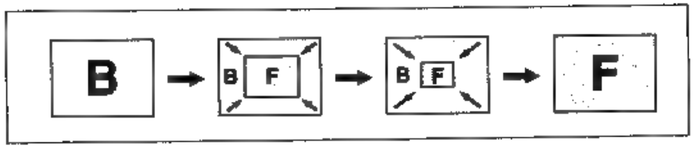
In the figures below, B represents the background picture and F represents the foreground picture.

Normal direction (REVERSE button not lit)



Normal direction of effect pattern 1100

Reverse direction (REVERSE button lit)

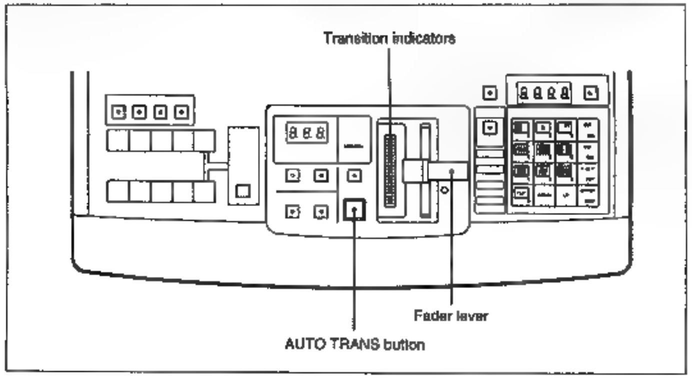


Reverse direction of effect pattern 1100

To learn the direction type of an effect, see "Effects Classified by Direction Type" (Page A-6).

Executing the Effect

After setting the transition direction, execute the effect by moving the fader lever or pressing the AUTO TRANS button.



Executing the effect

Executing effects with the fader lever

The fader lever allows you to control the effect manually. Move it to the opposite side at the desired speed to vary the speed of the transition. As the lever moves, the transition indicators on the left of the lever light to show its position.
In effects such as cuts, in which the pictures change instantly, the pictures change when the lever reaches the middle position.

Note

After turning the DFS-300/300P on, activate the fader lever by moving it all the way to the opposite side.

To stop the transition partway

Stop moving the fader lever.

To resume the transition

Move the fader lever again.

Executing effects with the AUTO TRANS button

Press the AUTO TRANS button to execute the effect using the duration set for the transition.

To momentarily interrupt the transition

Press the AUTO TRANS button again during the transition. The button goes out and the effect is interrupted.

Note

If the fader lever is left between the uppermost and lowermost positions, the transition will be interrupted when it reaches the point corresponding to the fader lever position. Be sure to move the fader lever to the uppermost or lowermost position if you do not want the transition to be interrupted.

To resume an interrupted transition

Press the AUTO TRANS button again.

Using the fader lever in combination with the AUTO TRANS button

After interrupting a transition started with the fader lever, you can use the AUTO TRANS button to resume and complete it. You can also use the fader lever to resume and complete a transition started with the AUTO TRANS button.

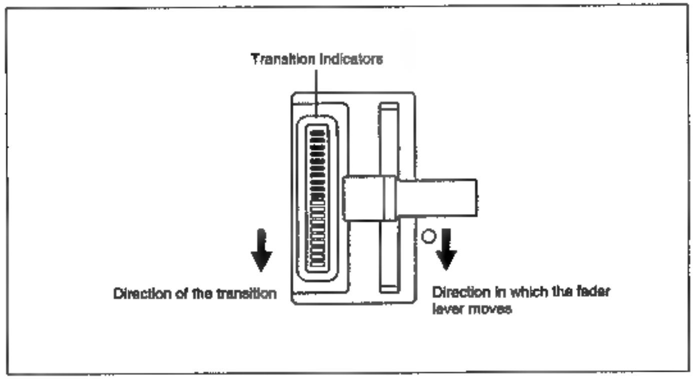
- When you use the AUTO TRANS button to resume a transition started with the fader lever, the remaining duration is applied to the remaining part of the transition. For example, if you set a transition duration of 100 frames and execute the first 25 frames with the fader lever, the remaining duration when you resume execution with the AUTO TRANS button is 75 frames.
- When you use the fader lever to resume a transition that was started and interrupted with the AUTO TRANS button, execution resumes when the fader lever reaches the position corresponding to the point where the transition was interrupted.

Note

When you execute an automatic transition from an editing control unit connected to the 9-pin EDITOR connector, the transition is always executed from beginning to end, regardless of the position of the fader lever.

To check the stage and direction of a transition

You can check the stage and direction of both manual and automatic transitions by checking the transition indicators—the 20 LEDs to the left of the fader lever. These LEDs light in the direction of the transition as the transition proceeds, and go out when the transition is complete.
If the transition is interrupted, lit LEDs remain lit. You can continue the transition by moving the fader lever in the direction of the LEDs which are not lit.


Transition indicators
Direction of the transition
Direction in which the fader lever moves

LED transition indicators

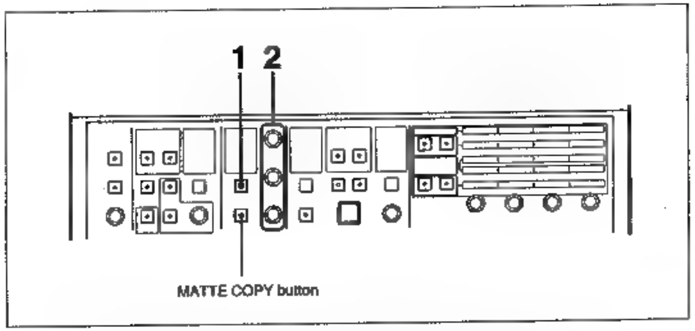
The figure above shows a transition that has just passed the midway point, with the LEDs lighting from the top toward the bottom.

Adjusting Color Mattes

The DFS-300/300P is equipped with three built-in signal generators (five when the optional BKDF-504/504P board is installed) to generate color matte signals. You can adjust the color of each matte independently, and copy a color from one matte to another.

Operation

To adjust a color matte, proceed as follows.



Adjusting color mattes

1 Press the SELECT button to select a color matte for adjustment.
The corresponding indicator lights. (However, the DSK MAT and DSK BORD indicators light only when the optional BKDF-504/504P board is installed.)

COL BKGD (color background): The color matte used in background and foreground pictures.

BORD MAT (border matte): The color matte used for borders, and as a key fill signal for titles.

EFF MAT (effect matte): The color matte used in effect patterns, and as a key fill signal for titles.

DSK MAT (downstream key matte): The color matte used as a downstream key fill signal.

DSK BORD (downstream key border matte): The color matte used as the border of a downstream key signal.

2 Rotate the HUE, SAT, and LUM knobs to adjust the hue, saturation, and luminance of the matte.

Note

If you rotate the LUM knob when the color matte signal is set to high luminance, the saturation value is adjusted automatically to avoid exceeding specifications.

Copying color matte data

To copy color matte data, proceed as follows.

1. Press the SELECT button to select the matte you want to copy from.

   The corresponding indicator lights.

2. Press the MATTE COPY button, turning it on.

3. Press the SELECT button to select the color matte you want to copy to.

   The corresponding indicator lights. The indicator for the copy source matte (the matte selected in step **1**) begins to flash.

4. Press the MATTE COPY button again.

   The button goes out, and the copy destination matte is set to the same color as the copy source matte.

To cancel the copy operation

In step **3**, select the same color matte you selected in step **1**, and press the MATTE COPY button. The copy operation is canceled.

Adjusting the Color Balance — Color Corrector

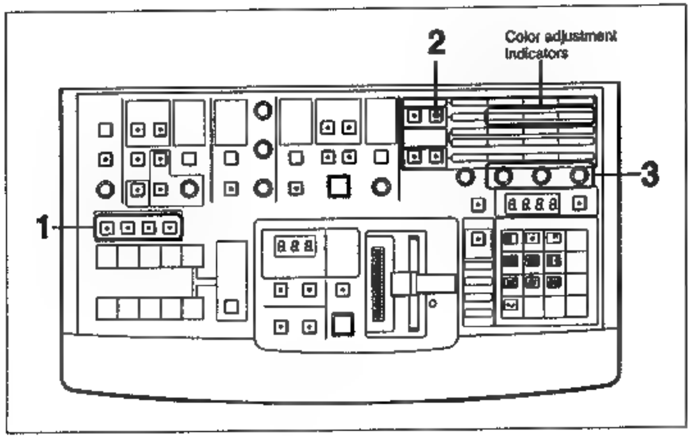
You can use the built-in color corrector of the DFS-300/300P to adjust the white balance or change the overall color balance of a picture. The object of color correction is one of the four primary input signals (the signals input to the VIDEO INPUTS 1 to 4 connectors).

Note

Color corrector settings are not saved in snapshots.

Operation

Proceed as follows to adjust the white balance or overall color balance of an input signal.



Using the color corrector

1. Press one of the COLOR CORRECTION 1 to 4 buttons in the primary crosspoint bus section.

   The button lights and the corresponding input signal is selected.

   Notes
   - You cannot select more than one input signal at a time for adjustment by the color corrector.
   - Color correction affects the background picture as well as the foreground picture. You cannot adjust only the background or only the foreground picture.

2. Press the COL CRRCT button in the EFFECTS CONTROL section. (If the COL CRRCT button is already lit, skip this step.)

   The button lights, and the color corrector adjustment indicators (HUE, OFFSET, C GAIN) to the right of the button light.

3 While viewing the picture on the monitor, rotate the parameter adjustment knobs corresponding to the color corrector indicators.

HUE: Rotate to adjust the color balance of the picture.

Note

Rotating the HUE knob has no effect when the OFFSET value is set to the minimum value.

OFFSET: Rotate to select the color correction range of the HUE knob. Rotating this knob clockwise widens the range. Rotating it counterclockwise narrows the range to permit fine adjustments with the HUE knob.

C GAIN: Rotate to adjust the chroma gain (video amplification) of the input signal.

To reset the color corrector settings (no color correction)

Select an input signal, and press the P IN P/RST button in the keypad section while holding down the COL CRRCT button in the EFFECTS CONTROL section.

The picture on the monitor changes to a picture with no color correction, and the OFFSET value changes to the minimum value. If you want to continue with color correction, rotate the knob corresponding to the OFFSET indicator to select a moderate adjustment range, and adjust by rotating the HUE knob.

To turn the color corrector off

Press the lit COLOR CORRECTION 1 to 4 button.
The button goes out and the color corrector is turned off.

Chapter 5 Advanced Operations

This chapter explains how to assign effects to keypad buttons, how to create, edit, execute, and delete user program effects, and how to use control panel snapshots.

Changing Direct Pattern Assignments 5-2

User Program Effects 5-4

- Designing User Program Effects 5-4
- Creating New User Program Effects 5-10
- Editing User Program Effects 5-12
- Executing User Program Effects 5-18
- Deleting User Program Effects 5-19

Snapshots 5-20

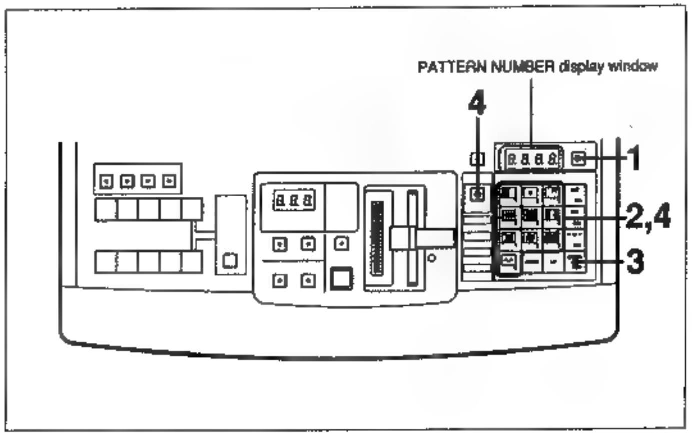
- Registering Snapshots — Learn 5-21
- Recalling Snapshots — Recall 5-22

Changing Direct Pattern Assignments

You can change the effect patterns assigned to the numeric buttons (0 to 9) in the keypad section. Doing so allows you to select frequently used patterns simply by pressing the corresponding buttons in direct pattern selection mode.
However, note that the patterns assigned to the CUT/INS, MIX/DEL, and P IN P/RST buttons cannot be changed.

Operation

To change the pattern assigned to a numeric button, proceed as follows.



Changing direct pattern assignments

1. Press the SET button.

   The button lights, the PATTERN NUMBER display window mode indicator lights, and the unit enters pattern number entry mode.

2. Use the numeric buttons to enter the pattern number you want to assign to a button.

   For more information about pattern numbers, see "Effect Pattern Image List" (page A-11).

   The number you enter appears in the PATTERN NUMBER display window.

3. Press the ENTER button.

4. While holding down the DIRECT PATTERN button, press the numeric button (0 to 9) to which you want to assign the pattern.

   The numeric button and the number in the PATTERN NUMBER display window flash three times, and the pattern number entered in step **2** is assigned to the button.

To restore the default assignments (direct pattern initialization)

After changing pattern assignments, you can restore the factory default assignments shown in "Effects assigned to the PATTERN/KEYPAD buttons" *(page 4-6)*.
Proceed as follows to return all of the numeric buttons (0 to 9) to the factory default assignments.

1. If the EDIT button in the USER PROGRAM section is lit, press it so that it goes out.
2. Press the DIRECT PATTERN button, turning it on.
3. While holding down the P IN P/RST and the DOWN button in the keypad section, press the DIRECT PATTERN button.

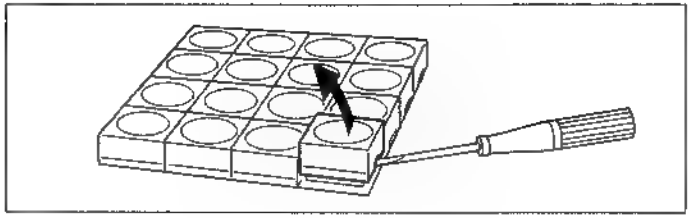
   A buzzer sounds, and the factory default assignments are restored.

Replacing button labels

After changing a pattern assignment, you may want to replace the label of the numeric button.
Proceed as follows.

1. Draw a new pattern on one of the supplied button labels.
2. Remove the button by inserting a small screwdriver into the hole on the side of the button.

   To remove a button at the center, first remove the adjacent buttons.



3. Remove the old label, and replace it with the new label.
4. Return the button to its original position.

User Program Effects

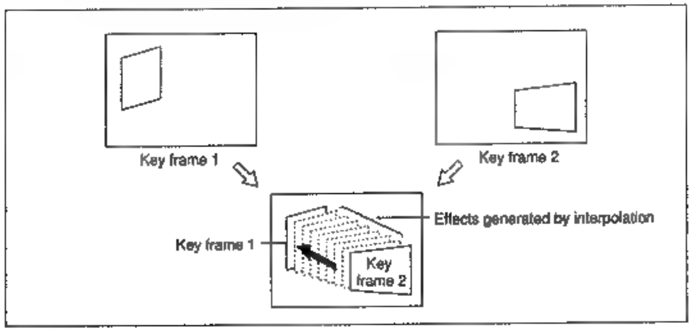
You can add to the DFS-300/300P's store of built-in effect patterns by creating and registering your own effect patterns. Such effects are called user program effects. You can register up to 20 user program effects, or up to 40 if you install the optional BKDF-301/301P 3D Effects Board. They are executed in the same way as built-in effects, by specifying the pattern number.

Designing User Program Effects

This section provides information that you need to design your own user program effects.

The structure of user program effects

User program effects are effect patterns with specific shapes and directions, as defined by parameters stored in records called key frames.
For each user program effect, you can register up to eight key frames, numbered 1 through 8. When you execute a user program effect, it begins as the effect defined by the highest numbered key frame and changes gradually into the effect defined by key frame 1, passing in equal stages through any intermediate key frames. Lower numbered key frames are created first and executed last, so user program effects normally move in the direction opposite to the one you see when creating them. But you can execute the lower numbered key frames first by pressing and lighting the REVERSE button.
Transitions between key frames are smooth because spline interpolation is used to generate intermediate effects. You can control the smoothness of the transition by adjusting the smoothness of the spline curves.



Structure of user program effects

If you execute a user program effect that consists of a single key frame, the result is that the foreground picture appears against the background picture, subjected only to the effect defined for key frame 1.

User program effect types

There are four types of user program effects. The four types must be registered under the pattern numbers shown below.

Types of user program effects

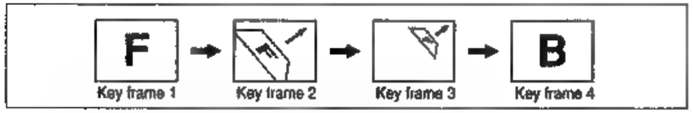
Type of effect		Pattern numbers
Linear	Transition	9000 to 9009
	Animation	9100 to 9109
Nonlinear [a]	Transition	9200 to 9209
	Animation	9300 to 9309

[a] You need to install the optional BKDF-301/301P board to use nonlinear effects.

Linear effects
These effects have parameters for X, Y, and Z-axis rotation, expansion, reduction, and movement. *(For the parameters, see page 5-7.)*

Nonlinear effects
These effects have parameters for forms such as page turn, page roll, and sphere, plus parameters for Z-axis rotation, expansion, reduction, and movement. *(For the parameters, see page 5-8.)*

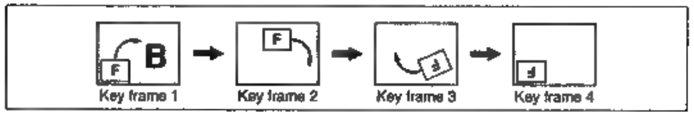
Transition effects
When this type of effect is executed, a background picture (B) is replaced by a foreground picture (F).



Creating a transition effect

When an effect created as shown is executed in normal order (REVERSE button not lit), it executes from key frame 4 to key frame 1, and the foreground picture moves in from the upper right. Note that the optional BKDF-301/301P board must be installed to add the perspective shown in the figure.

Animation effects
In this type of effect, a foreground picture (F) moves around against a background picture (B). You can define the shape of the foreground picture and the way it moves.



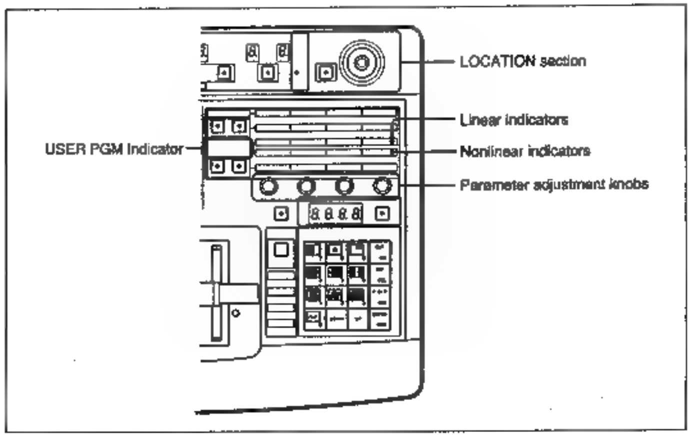
Creating an animation effect

In normal order (REVERSE button not lit), animation effects also execute from key frame 4 to key frame 1.

Setting user program effect parameters

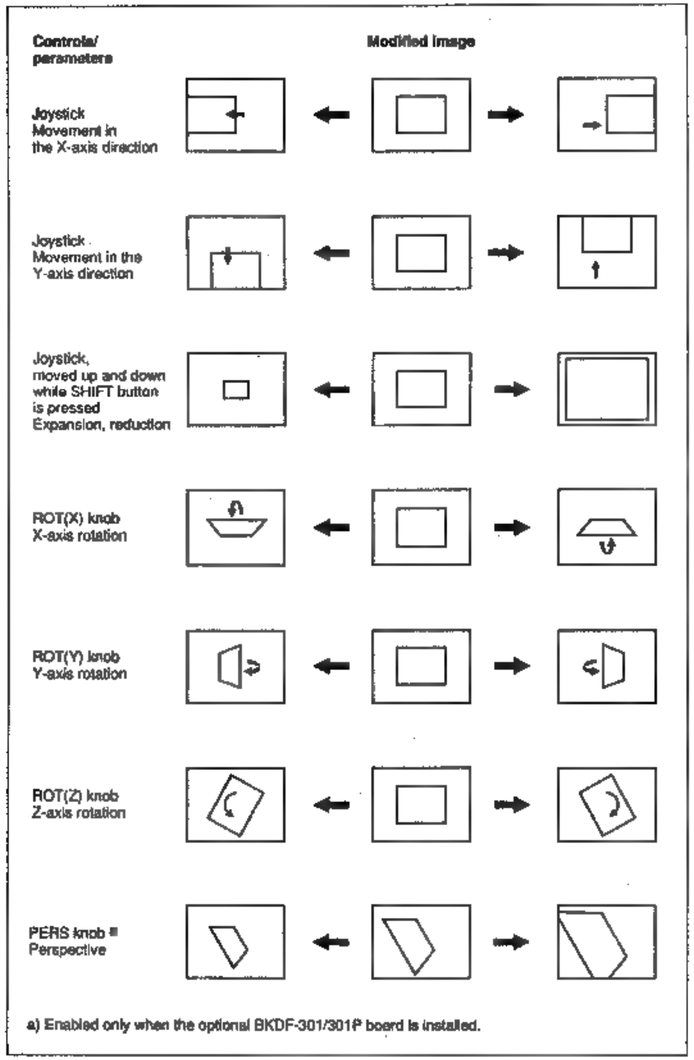
You can use the controls in the LOCATION and EFFECTS CONTROL section to set the parameters listed on pages 5-7 and 5-8.

- When you enter a user program effect number in the linear effect range, the USER PGM indicator lights, and the ROT(X), ROT(Y), ROT(Z), and PERS indicators in the linear row light.
  However, the PERS indicator lights only if you have installed the optional BKDF-301/301P board.
- When you enter a user program effect number in the nonlinear effect range, the USER PGM indicator lights, and the OFFSET, FORM, ROT(Z), and ANGLE indicators in the nonlinear row light.



Setting user program effect parameters

Linear effects: 9000 to 9009 and 9100 to 9109

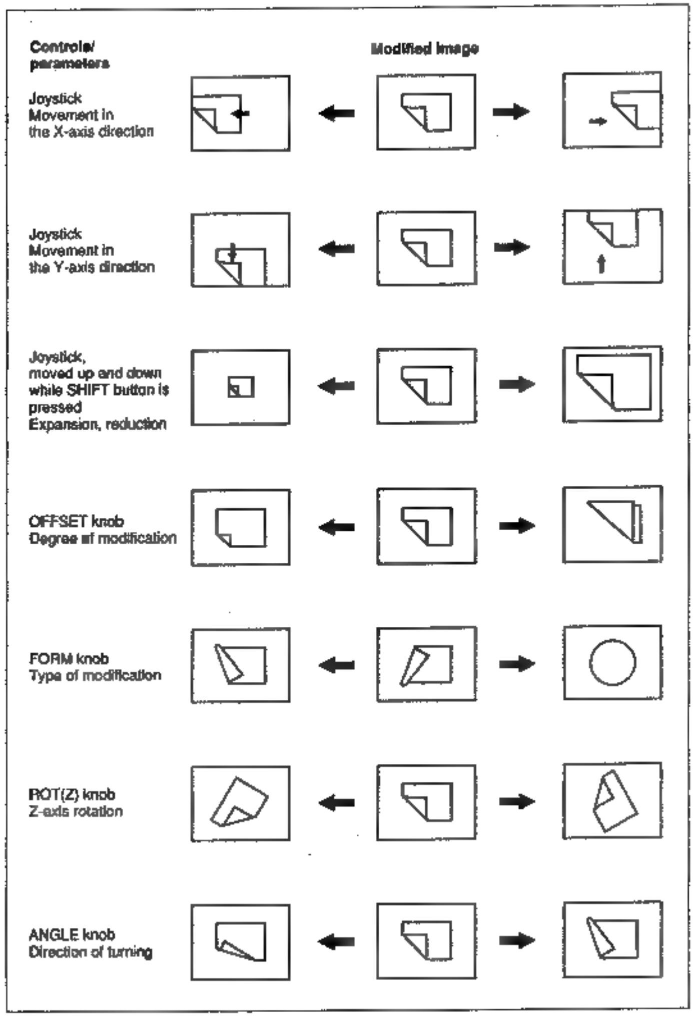

Controls/
parameters
Modified image
Joystick
Movement in
the X-axis direction
Joystick
Movement in the
Y-axis direction
Joystick,
moved up and down
while SHIFT button
is pressed
Expansion, reduction
ROT(X) knob
X-axis rotation
ROT(Y) knob
Y-axis rotation
ROT(Z) knob
Z-axis rotation
PERS knob a)
Perspective

a) Enabled only when the optional BKDF-301/301P board is installed.

Linear effect parameters

Nonlinear effects: 9200 to 9209 and 9300 to 9309

To use nonlinear effects, you must install the optional BKDF-301/301P board.


Controls/
parameters
Modified image
Joystick
Movement in
the X-axis direction
Joystick
Movement in
the Y-axis direction
Joystick,
moved up and down
while SHIFT button is
pressed
Expansion, reduction
OFFSET knob
Degree of modification
FORM knob
Type of modification
ROT(Z) knob
Z-axis rotation
ANGLE knob
Direction of turning

Nonlinear effect parameters

Displaying parameter values

In user program edit mode (EDIT button lit), press one of the numeric buttons in the keypad section. The current value of the corresponding parameter appears in the PATTERN NUMBER display window. You can adjust the value precisely by comparing the displayed value to the values shown in the table below.

Parameter display values

Parameter	Function	Numeric button	Adjustable range	Default value
LOCATION(X)	Movement in the X-axis direction	7	–5.33 to +5.33 [a]	0.00
LOCATION(Y)	Movement in the Y-axis direction	8	–5.98 to +6.00 [b]	0.00
LOCATION(Z)	Expansion, reduction	9	0.00 to 1.99	1.00
ROT(X)	X-axis rotation	1	–4.00 to +3.99 [c]	0.00
ROT(Y)	Y-axis rotation	2	–4.00 to +3.99 [c]	0.00
ROT(Z)	Z-axis rotation	3	–4.00 to +3.99 [c]	0.00
PERS	Perspective	4	0.50 to 2.00	1.00
OFFSET	Degree of modification	1	0.00 to 1.00	0.00
FORM	Type of modification	2	0 to 7 [d]	0
ROT(Z)	Z-axis rotation	3	–4.00 to +3.99 [c]	0.00
ANGLE	Direction of turning	4	–0.63 to +0.63 [c]	0.13

a) A value of 4.00 means the full width of the screen.

b) A value of 3.00 means the full height of the screen.

c) A value of 1.00 means 360°.

d) The following effects are assigned to numbers FORM 0 through 7. Note that the ANGLE parameter is disabled if you select FORM 7.

0	Page turn (radius: small)
1	Page turn (radius: medium)
2	Page turn (radius: large)
3	Page roll (radius: small)
4	Page roll (radius: medium)
5	Page roll (radius: large)
6	Page roll (reverse roll)
7	Sphere

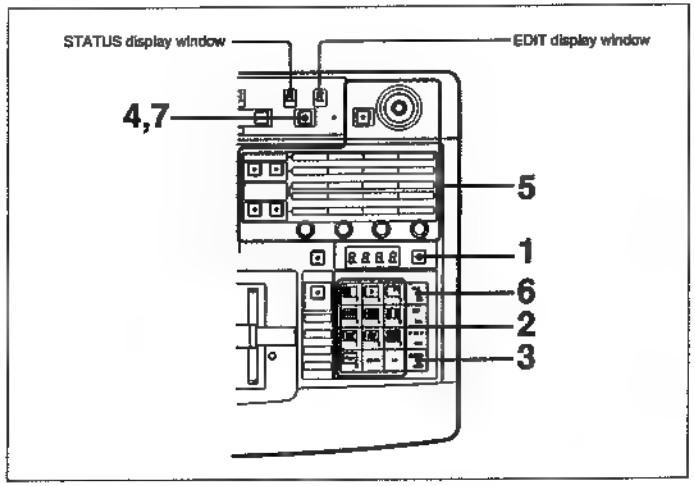
To restore default parameter values (reset)

- To restore all parameters to their default values, press the P IN P/RST button. The default parameters are for an unmodified picture occupying the whole screen.
- To restore a specific parameter, refer to the above table "Parameter display values", and press the P IN P/RST button while holding down the numeric button corresponding to the parameter. For example, press P IN P/RST and [7] to restore the default LOCATION(X) parameter.
- To restore all of the LOCATION(X),(Y),(Z) parameters, press the LOCATION button so that it goes out.
  Press the LOCATION button again, turning it on, to set a new LOCATION(X),(Y),(Z) parameter.

Creating New User Program Effects

Operation

Proceed as follows to create new user program effects.



Creating new user program effects

1. Press the SET button.

2. Using the numeric buttons, enter a user program effect pattern number.

   The number appears in the PATTERN NUMBER display window.
   If the number is not a user program effect number, a warning tone will alert you in step **4** of this procedure.

Types of user program effects

Type of effect		Pattern numbers
Linear	Transition	9000 to 9009
	Animation	9100 to 9109
Nonlinear [a]	Transition	9200 to 9209
	Animation	9300 to 9309

a) You need to install the optional BKDF-301/301P board to use nonlinear effects.

3 Press the ENTER button.

The STATUS display window shows "1", the number of key frames in the effect. If it shows any number other than "1", several key frames have already been registered for this user program effect. In this case, do one of the following.

- **To delete the user program effect and start over:** Press the EDIT button, turning it on, and perform step **2** in the procedure in "Deleting a specific user program effect" *(page 5-19)*. Then proceed to step **5** in this procedure.
- **To edit the user program effect without erasing it:** Press the EDIT button, turning it on, and execute one of the procedures (change, add, copy, or delete) in "Editing User Program Effects" *(page 5-12)*.

4 Press the EDIT button.

The button lights, and the unit enters user program edit mode. The video signal (key frame 1) selected with the FOREGROUND bus buttons appears on the monitor screen. The picture fills the whole screen. This is because, when you create a new user program effect, key frame 1 is assigned the default parameters not to change the picture in any way.
In the EFFECTS CONTROL section, the USER PGM indicator lights. To its right, either of the upper row and lower row indicators light, depending on the pattern number entered in step **2**.

Note

The lower row indicators do not light if you have not installed the optional BKDF-301/301P board.

- **Linear pattern numbers (9000 to 9009, 9100 to 9109):** The ROT(X), ROT(Y), ROT(Z), and PERS indicators light. However, the PERS indicator does not light if you have not installed the optional BKDF-301/301P board.
- **Nonlinear pattern numbers (9200 to 9209, 9300 to 9309):** The OFFSET, FORM, ROT(Z), and ANGLE indicators light.

5 Using the controls in the LOCATION and EFFECTS CONTROL sections, prepare an effect for key frame 2.

When creating a transition effect, see "Notes on creating transition-type user program effects" at the end of this procedure.

6 When you are finished setting the parameters, press the CUT/INS button.

The parameters set in step **5** are registered for key frame 2. The key frame count in the STATUS display window and EDIT display window changes to 2. However, if you are creating an animation effect, you can press the ENTER button instead of the CUT/INS button. In this case, the parameters set in step **5** are registered for key frame 1 (that is, the parameters for key frame 1 are changed), and the key frame count in the STATUS display window remains unchanged. This is possible becouse an animation effect does not necessarily require its key frame 1 to be assigned the default parameters.

(Continued)

Repeat steps **5** and **6** until you have registered the required number of key frames (maximum 8).
The number of key frames registered will appear in the STATUS display window.

7 After registering the last key frame, press the EDIT button again.

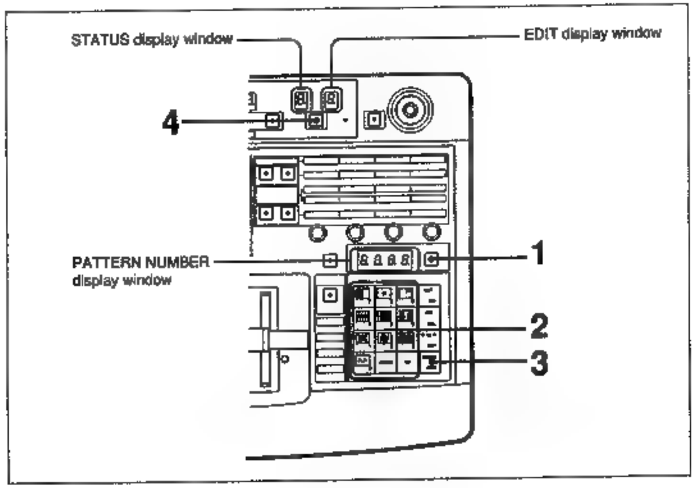
The button goes out. The newly created user program effect is ready to be executed.

Notes on creating transition-type user program effects

- Leave key frame 1 unmodified and set to the whole screen. (When a new user program effect is created, its key frame 1 is assigned the default parameters for an unmodified full-screen picture.)
- For the last key frame, select parameters that make the foreground picture completely disappear. (Set its size to 0, or move it off the screen.) This ensures smooth transitions in your effect.
- You cannot register different PERS parameters for different key frames in linear effects, or different FORM parameters for different key frames in nonlinear effects. The PERS or FORM parameter registered for the last key frame is used for all key frames of the effect.

Editing User Program Effects

After creating a user program effect, you can change its parameters, or add, delete, or copy key frames.



Editing user program effects

Recalling a user program effect

Proceed as follows to recall a user program effect.

1 Press the SET button.

2 Use the numeric buttons in the keypad section to enter the number of the user program effect you want to edit.

The number appears in the PATTERN NUMBER display window.

3 Press the ENTER button.

The STATUS display window shows the number of key frames registered in the designated user program effect.

4 Press the EDIT button.

The button lights, and the picture specified in step **2** (selected with the FOREGROUND bus button) appears on the monitor screen.
The STATUS display window shows the number of the key frames in the designated user program effect.

Changing the key frame parameters

After performing steps **1** to **4** in "Recalling a user program effect", continue by performing steps **5** through **8** below.

5 Press the UP and DOWN buttons in the keypad section until the number of the key frame you want to edit appears in the EDIT display window.

6 Change the parameters using the controls in the LOCATION and EFFECTS CONTROL sections.

For details, see "Setting user program effect parameters" (page 5-6).

7 Press the ENTER button.

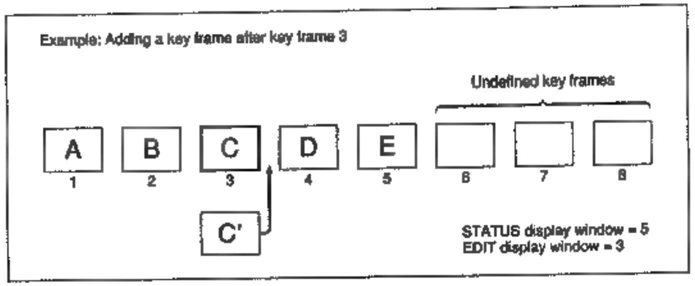
The new parameters are registered.

Repeat steps **5**, **6**, and **7** to change parameters for other key frames.

8 When finished making changes, press the EDIT button.

The button goes out. The changed user program effect is registered again.

Adding a key frame


Example: Adding a key frame after key frame 3
Undefined key frames
A
B
C
D
E
1
2
3
4
5
6
7
8
C'
STATUS display window = 5
EDIT display window = 3

Adding a key frame (before addition)

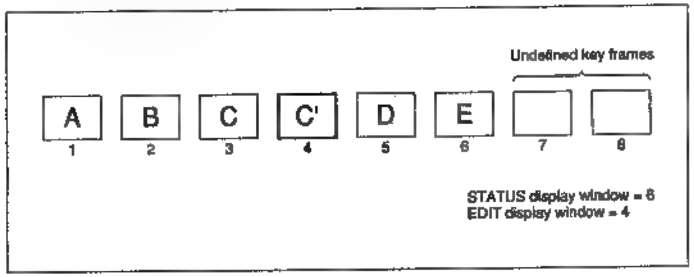
After performing steps **1** to **4** in "Recalling a user program effect", continue by performing steps **5** through **8** below.

5 Press the UP and DOWN buttons in the keypad section until the number ("3" in the above example) of the key frame that will precede the additional frame appears in the EDIT display window.

6 Set the parameters for the additional frame using the controls in the LOCATION and EFFECTS CONTROL sections.

7 Press the CUT/INS button.

A key frame using the parameters set in step **6** is inserted after the key frame specified in step **5**, and the numbers in the STATUS and EDIT display windows are incremented by 1.



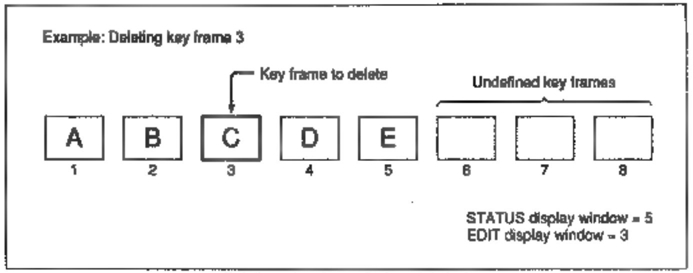
Adding a key frame (after addition)

Repeat steps **5**, **6**, and **7** as required to add more key frames.

8 When finished adding key frames, press the EDIT button.

The button goes out. The user program effect with the additional key frames is registered.

Deleting a key frame



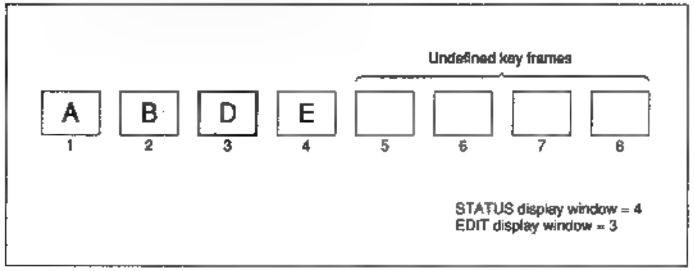
Deleting a key frame (before deletion)

After performing steps **1** to **4** in "Recalling a user program effect", continue by performing steps **5** through **7** below.

5 Press the UP and DOWN buttons in the keypad section until the number ("3" in the above example) of the key frame that you want to delete appears in the EDIT display window.

6 Press the MIX/DEL button.

To prevent unintended deletions, this button does not operate immediately; keep it pressed for at least 0.5 seconds.
After 0.5 seconds, a buzzer sounds and the key frame specified in step **5** is deleted. The number in the STATUS display window is decremented by 1.



Deleting a key frame (after deletion)

Repeat steps **5** and **6** as required to delete more unneeded key frames.

7 When finished deleting key frames, press the EDIT button.

The button goes out. The user program effect without the unneeded key frames is ready to be executed.

Assigning key frame data to a numeric button (temporary assignment function)

While editing user program effects, you can temporarily assign key frame data to keypad numeric buttons. This makes it easy to recall the data for use in changing or adding key frames. You can register 10 sets of data each for linear and nonlinear effects, for a total of 20 sets of key frame data.

To assign key frame data

Proceed as follows.

1 If the EDIT button is not lit, press it.

The button lights and the unit enters user program edit mode.

2 Set the key frame data.
Use the controls in the EFFECTS CONTROL and LOCATION sections to set parameters for the user program effect you are editing.

For details, see "Setting user program effect parameters" (page 5-6).

3 Press the ENTER button while holding down one of the keypad numeric buttons (0 to 9).

The numeric button lights, and the data set in step **2** is assigned to the button.

To recall key frame data

Proceed as follows.

1 If the EDIT key is not lit, press it.

The button lights and the unit enters user program edit mode.

2 Press the ENTER button while holding down one of the lit keypad section numeric buttons (0 to 9).

The lit numeric button goes out, and the data stored in that button is recalled.

Notes

- The data is cleared when it is recalled. If you want to use it again, assign it again.
- Data for linear effects cannot be assigned to nonlinear effects, and vice versa.
- Key frame data assigned to the numeric buttons is lost when the DFS-300/300P is powered off.

Copying a key frame

You can use the temporary assignment function to copy data from one key frame to another.
Proceed as follows.

1. Recall the user program effect you want to copy from, and press the EDIT button, turning it on.

   For details see "Recalling a user program effect" (page 5-13).

2. Press the UP or DOWN button in the keypad section until the number of the key frame you want to copy from appears in the EDIT display window.

3. Press the ENTER button while holding down a numeric button (0 to 9).

   The numeric button lights. The data of the key frame data selected in step **2** is assigned to that button.

4. Press the EDIT button again.

   The button goes out, and the unit leaves user program edit mode.

5. Recall the user program effect you want to copy to, and press the EDIT button, turning it on.

   For details see "Recalling a user program effect" (page 5-13).

   Note

   The copy destination must be an effect of the same type (linear or nonlinear) as the copy source.

6. Press the UP or DOWN button in the keypad section until the number of the key frame you want to copy to appear in the EDIT display window.

7. Press the ENTER button while holding down the numeric button selected in step **3**.

   The numeric button goes out, and the key frame data is recalled.

8. Press the ENTER button again.

   The key frame data is copied to the copy destination.

9. Press the EDIT button.

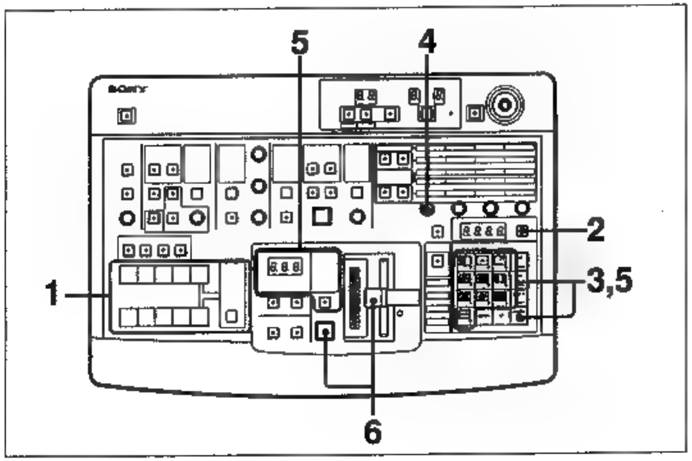
   The button goes out and the unit leaves user program edit mode.

Executing User Program Effects

User program effects are executed in the same way as built-in effects, by entering the pattern number.
Transitions between the key frames in user program effects are smooth because spline interpolation is used to generate intermediate effects. You can control the smoothness of transitions by adjusting the spline curve.

Proceed as follows to execute user program effects. Except for step **4**, the procedure is the same as the procedure used to execute built-in effects from pattern number entry mode.

For more information about executing built-in effects, see "Executing the Effect" (page 4-33).



Executing user program effects

1. Select the background and foreground pictures.

2. Press the SET button.

3. In the keypad section, enter the number of the user program effect you want to execute with the numeric buttons and press the ENTER button.

   The STATUS display window shows the number of key frames in the effect.

4. If necessary, rotate the F1 parameter adjustment knob in the EFFECTS CONTROL section to adjust the smoothness of the transition.
   Rotate the knob counterclockwise to increase the smoothness.

5. Set the duration and direction of the transition as required.

6. Execute the effect with the fader lever or AUTO TRANS button.

Deleting User Program Effects

Deleting a specific user program effect

Proceed as follows.

1 Recall the user program effect you want to delete, and press the EDIT button, turning it on.

For details, see "Recalling a user program effect" (page 5-13).

2 In the keypad section, press the MIX/DEL button while holding down the P IN P/RST button.

To prevent unintended deletions, the MIX/DEL does not operate immediately; hold it down for at least 0.5 seconds.
After 0.5 seconds, a buzzer sounds and all key frames in the user program effect are deleted. The EDIT display window and STATUS display window each show "1".

Deleting all user program effects (initialization)

Proceed as follows.

1 Recall any user program effect, and press the EDIT button, turning it on.

For details, see "Recalling a user program effect" (page 5-13).

2 While holding down the keypad P IN P/RST and MIX/DEL buttons, press the EDIT button.

A buzzer sounds and all registered user program effects are deleted.

Snapshots

This unit's snapshot functions allow you to save up to 100 control panel states, and restore the control panel to any of those states whenever necessary.
Snapshots of the control panel are saved in internal snapshot registers, numbered from 0 to 99. When a snapshot is recalled, all of the settings in the following list are copied from the snapshot register back to the control panel.

Settings saved in control panel snapshots

Operational section	Settings
Primary crosspoint bus	Signal selected by the FOREGROUND bus buttons Signal selected by the BACKGROUND bus buttons Signal selected by the INT VIDEO SELECT button
EFFECTS TRANSITION	Transition duration Transition direction (setting of the REVERSE button) Setting of the FREEZE button
Keypad	Direct pattern assignments
TITLE	All settings
MATTES	Color settings for all color mattes
DOWNSTREAM KEYER	All settings
EFFECTS CONTROL	Parameters of user-modifiable effects Smoothness setting (F1 setting) for user program effects
EDGE	All settings
LOCATION	All settings

Note

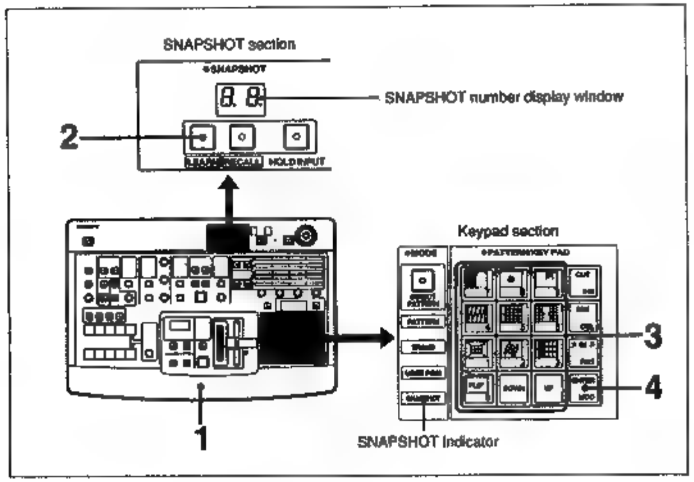
Color corrector settings and fader lever positions are not saved in snapshots.

Registering Snapshots — Learn

Proceed as follows to register a snapshot.

Note

The default snapshots are saved at the factory in each of the 100 snapshot registers. The following procedure allows you to overwrite the data in any of the registers.


SNAPSHOT section
SNAPSHOT
SNAPSHOT number display window
2
LEARN
RECALL
HOLD INPUT
Keypad section
3
4
1
SNAPSHOT indicator

Registering snapshots

1 Set the buttons and controls on the control panel so that it is configured to the state you want to save.

2 Press the LEARN button.

The button and the SNAPSHOT indicator light.
Dots light next to the digits in the SNAPSHOT number display window to show that the keypad section is in snapshot number entry mode.

3 Using the numeric buttons, enter a snapshot number.
You can increment or decrement the number with the UP and DOWN buttons.

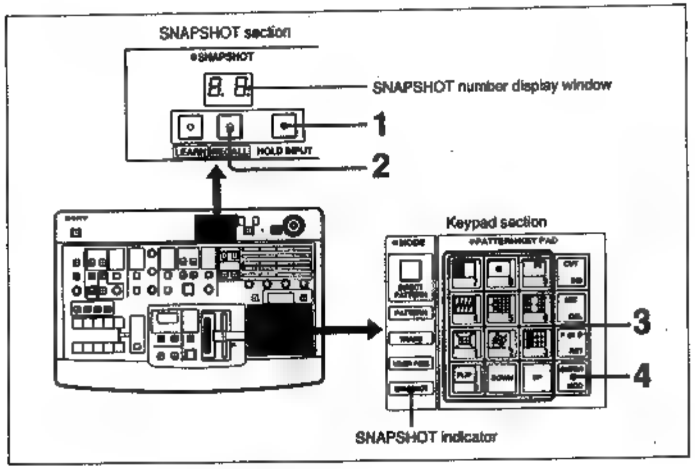
4 Press the ENTER button.

The LEARN button and the number in the SNAPSHOT display window flash three times, and the current control panels settings are saved in a snapshot. The LEARN button goes out after all of the data is saved.

To cancel the snapshot saving operation
In step **4**, press the LEARN button instead of the ENTER button. The LEARN button goes out and the operation is canceled.

Recalling Snapshots — Recall

Proceed as follows to recall a snapshot.


SNAPSHOT section
SNAPSHOT
SNAPSHOT number display window
1
2
LEARN
RECALL
HOLD INPUT
Keypad section
3
4
SNAPSHOT indicator

Recalling snapshots

1 If you do not want to change the current settings in the crosspoint bus section, press the HOLD INPUT button.

The button lights.

2 Press the RECALL button.

The button and the SNAPSHOT indicator light.
Dots light next to the digits in the SNAPSHOT number display window to show that the keypad section is in snapshot number entry mode.

3 Using the numeric buttons, enter a snapshot number.
You can increment or decrement the number with the UP and DOWN buttons.

4 Press the ENTER button.

Snapshot data is copied from the designated snapshot register to the control panel.
However, if the HOLD INPUT button is lit, the primary crosspoint bus settings remain unchanged.
The RECALL button goes out after all of the data has been copied.

To cancel the recall operation
In step **4**, press the RECALL button instead of the ENTER button. The RECALL button goes out and the operation is canceled.

Viewing the snapshot demonstration

To check the contents of the snapshot registers, you can view a demonstration of snapshots 0 through 99.
The default demonstration is identical to the unit's built-in demonstration of special effects *(see page 3-9)*. But snapshots and built-in special effects are stored in different locations. Even after changing the contents of the snapshot registers, you can still view the special effects demonstration.

To start the demonstration

Press the AUTO TRANS button in the EFFECTS TRANSITION section while holding down PATTERN/KEYPAD buttons 1 and 7. All of the currently registered snapshots are executed repeatedly, beginning with the currently designated one. During the demonstration, the buttons in the PATTERN/KEYPAD section light in counterclockwise order.

- The setting of the HOLD INPUT button is effective also for the snapshot demonstration.
- During the demonstration, all control panel buttons are disabled except the AUTO TRANS button.

To end the demonstration

Press the AUTO TRANS button.

Initializing snapshot data

You can initialize the snapshot registers to the factory default snapshots.
Proceed as follows.

1. If the EDIT button in the USER PROGRAM section is lit, press it so that it goes out.
2. Press the LEARN button.
3. While holding down the P IN P/RST and DOWN buttons in the keypad section, press the LEARN button again.

   A buzzer sounds, and all snapshots are initialized to the factory defaults.

Chapter 6
Control From Editing Control Units

This chapter explains preparations and settings needed to control the DFS-300/300P from your editing control unit.

Control From the PVE-500 6-2
  Cut Editing 6-3
  A-Roll Editing 6-4
  A/B Roll Editing 6-6
Control From the RM-450 6-8
Control From the BVE-600 6-11
  A-Roll Editing 6-12
  A/B Roll Editing 6-13
Control From the BVE-900/2000 Series 6-14
Control Using GPI Signals 6-17
  A-Roll Editing 6-18
  A/B Roll Editing 6-19

Control From the PVE-500

You can combine the DFS-300/300P with the PVE-500 Editing Control Unit to carry out A-roll editing with special effects using one player and one recorder, and A/B roll editing using two players and one recorder.
The PVE-500 controls the DFS-300/300P using PVE-500 control signals and GPI signals.

Control using PVE-500 control signals

You can control the following DFS-300/300P functions using 9-pin serial control signals from the PVE-500. Input these signals to the EDITOR connector on the DFS-300/300P.

- Background picture (FROM source) and foreground picture (TO source) selection
- Transition duration selection
- Automatic transition execution
- Automatic snapshot (automatic registration and recall of DFS-300/300P snapshots when you register PVE-500 edit data)

For more information about controlling these functions, refer to the PVE-500 Operating Instructions.

Downstream key control using GPI signals

You can use GPI signals from the PVE-500 to turn the DFS-300/300P downstream key function on and off at the falling edges of pulses. Input the GPI signals to the T2 connector on the DFS-300/300P.

For details of GPI signal timing, see page 6-20.

Enabling and disabling control by the editor

To enable or disable control of the DFS-300/300P by 9-pin serial control signals and GPI signals, press the EDITOR/GPI ENABLE button on the control panel so that it lights (enable control) or goes out (disable control).

- **To enable or disable control by 9-pin serial control signals,** press the EDITOR/GPI ENABLE button alone.
- **To enable or disable control by GPI signals,** press the EDITOR/GPI ENABLE button while pressing the SHIFT button.
  You can check whether GPI control is enabled by pressing the SHIFT button alone. The EDITOR/GPI ENABLE button lights if GPI control is enabled.

Control by both editor control signals and GPI signals is enabled when you power the DFS-300/300P on.

Preparations

Make the following preparations to control the DFS-300/300P from the PVE-500.

On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "PVE-500". Then power the DFS-300/300P on.

  For more information about the editing control unit select switch, see page 2-22.
- Check the EDITOR/GPI ENABLE button on the control panel to be sure that control by editor control signals or GPI signals is enabled.

  For details, see "Enabling and disabling control by the editor" on the previous page.
- If you want to carry out A-roll editing, connect the output of the recorder VCR to the VIDEO INPUTS 3 or VIDEO INPUTS 4 connector on the rear panel.

On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped. If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

On the PVE-500

Using the setup menu, make the following settings.

For more information about using the setup menu, refer to the PVE-500 Operating Instructions.

- Set the SWITCHER TYPE setup menu item (SEtUP-20) to "500". (The factory default setting is 500.)
- If you want to use the automatic snapshot function, set the AUTO SNAPSHOT setup menu item (SEtUP-21) to "On". (The factory default setting is OFF.)

Cut Editing

To perform a cut edit by controlling the DFS-300/300P from the PVE-500, proceed as follows.

For this operation, refer also to the PVE-500 Operating Instructions.

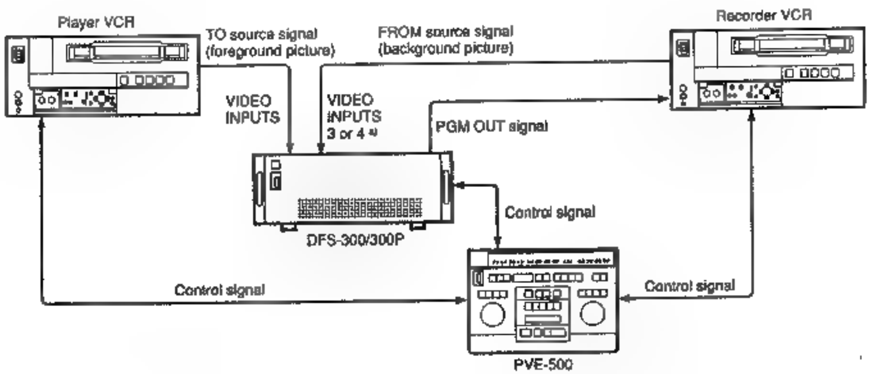
1. Press the A/B button on the PVE-500 to extinguish it.
2. Select the player VCR as the FROM source.
3. Set the IN and OUT points for the player VCR and recorder VCR, in any order.
4. Conduct a preview as required, and execute the edit.

A-Roll Editing

Signal flow

The flow of signals in A-roll editing is as follows.

For more information about connections, see "A-Roll Editing System Connections" (page 7-4).



Note

To improve editing accuracy, supply a reference sync signal to the PVE-500 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

a) Select input to VIDEO INPUTS 3 with AUX1 on the PVE-500, and input to VIDEO INPUTS 4 with AUX2.

Signal flow in A-roll editing

Operation

To perform A-roll editing by controlling the DFS-300/300P from the PVE-500, proceed as follows.

For this operation, refer also to the PVE-500 Operating Instructions.

1. On the PVE-500, press the A/B button so that it lights.
2. On the PVE-500, select the FROM source and TO source.
   As the FROM source, select AUX1 if you have connected the recorder VCR output to the VIDEO INPUTS 3 connector on the DFS-300/300P, or AUX2 if you have connected it to the VIDEO INPUTS 4 connector.

3 On the PVE-500, set the FROM source duration to "0".

4 Set the IN and OUT points for the TO source and the recorder VCR.

Note

Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the PVE-500 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder VCR edit points are not delayed.

5 On the PVE-500, press the TRANS button and set the transition duration.

6 On the DFS-300/300P, press one of the FREEZE buttons (FIELD or FRAME) to select the freeze mode for recorder video.

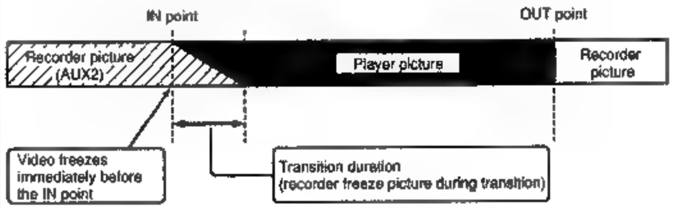
FIELD: When you execute the edit, the recorder video freezes 3 fields in advance of the IN point.

FRAME: When you execute the edit, the recorder video freezes 2 frames in advance of the IN point.

7 On the DFS-300/300P, select the effect and make other settings as required. Note that transition durations set on the PVE-500 take priority.

8 Conduct a preview as required and execute the edit.

The edit is recorded as shown below.

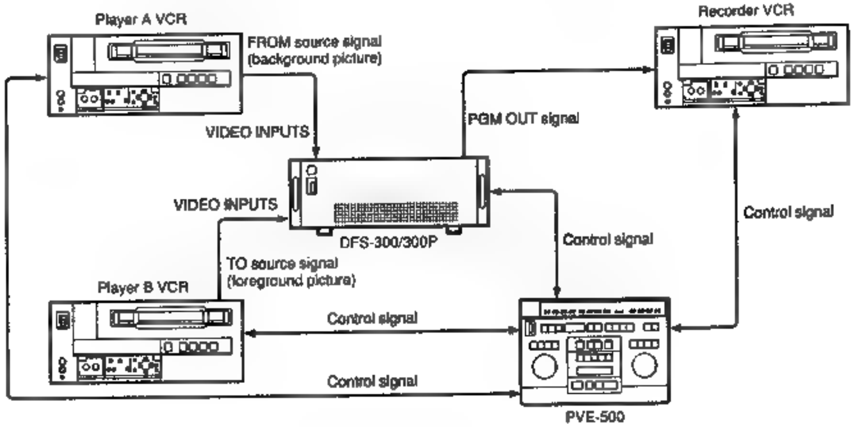

IN point
OUT point
Recorder picture (AUX2)
Player picture
Recorder picture
Video freezes immediately before the IN point
Transition duration (recorder freeze picture during transition)

A/B Roll Editing

Signal flow

The flow of signals in A/B roll editing is as follows.

For more information about connections, see "A/B Roll Editing System Connections" (page 7-5).


Player A VCR
FROM source signal (background picture)
Recorder VCR
PGM OUT signal
VIDEO INPUTS
VIDEO INPUTS
DFS-300/300P
Control signal
Control signal
TO source signal (foreground picture)
Player B VCR
Control signal
Control signal
PVE-500

Note

To improve editing accuracy, supply a reference sync signal to the PVE-500 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A/B roll editing

Operation

To perform A/B roll editing by controlling the DFS-300/300P from the PVE-500, proceed as follows.

For this operation, refer also to the PVE-500 Operating Instructions.

1. On the PVE-500, press the A/B button so that it lights.

2. On the PVE-500, select the FROM source and TO source.
   The FROM source corresponds to the background on the DFS-300/300P, and the TO source corresponds to the foreground.

3. Set the IN and OUT points for the FROM source, the TO source, and the recorder.

   Note

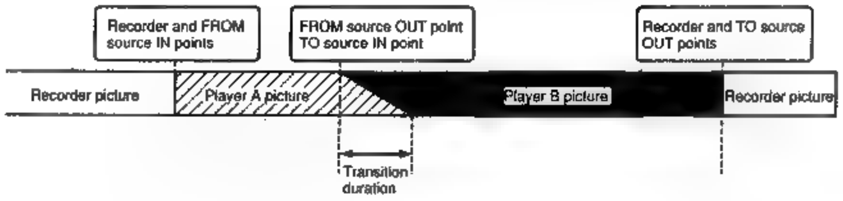
   Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the PVE-500 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.

4. On the PVE-500, press the TRANS button to light it and set the transition duration.

5. On the DFS-300/300P, select the effect and make other settings as required.
   Note that transition durations set on the PVE-500 take priority.

6. Conduct a preview as required and execute the edit.

   The edit is recorded as shown below.


Recorder and FROM source IN points
FROM source OUT point TO source IN point
Recorder and TO source OUT points
Recorder picture
Player A picture
Player B picture
Recorder picture
Transition duration

Control From the RM-450

You can combine the DFS-300/300P with the RM-450 Editing Control Unit to carry out A-roll editing with special effects using one player and one recorder. The RM-450 controls the DFS-300/300P with cue signals.

Preparations

Make the following preparations to control the DFS-300/300P from the RM-450.

On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "RM-450".
  If necessary, you can also adjust the RM-450 TIMING switch on the same internal board. When this switch is set to the factory default position of "8", the recorder picture freezes 3 fields in advance of the IN point. Depending on the VCRs used in your system, you may need to adjust this switch to obtain the correct timing. Conduct a preview of the edit and adjust the switch as required.
  After setting the switches, power the DFS-300/300P on.

  For more information about the SY-199 switches, see page 2-22.
- Check the EDITOR/GPI ENABLE button on the control panel to be sure that it is lit.
  (When the DFS-300/300P is powered on, the EDITOR/GPI ENABLE button lights to indicate that control by editor control signals is enabled. If the button is not lit, press it so that it lights.)
- Press one of the FREEZE buttons (FIELD or FRAME) to select the freeze timing for the recorder picture.
  (When the editing control unit select switch is set to "RM-450", the FIELD button lights automatically when the DFS-300/300P is powered on.)

On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped.
  If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

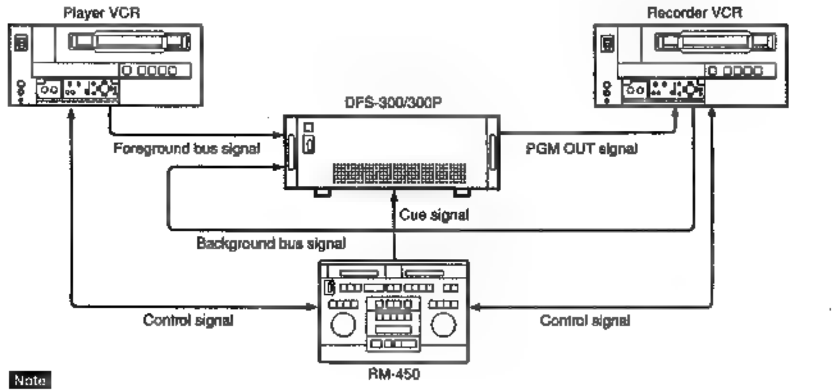
On the RM-450

- Set the VCR preroll time to 5 seconds or 7 seconds.
- Set the RM-450 cue signal output timing to 1 second before the IN point.

Signal flow

The flow of signals in editing with the RM-450 is as follows.

For more information about connections, see "A-Roll Editing System Connections" (page 7-4).


Player VCR
Recorder VCR
DFS-300/300P
Foreground bus signal
PGM OUT signal
Cue signal
Background bus signal
Control signal
Control signal
RM-450

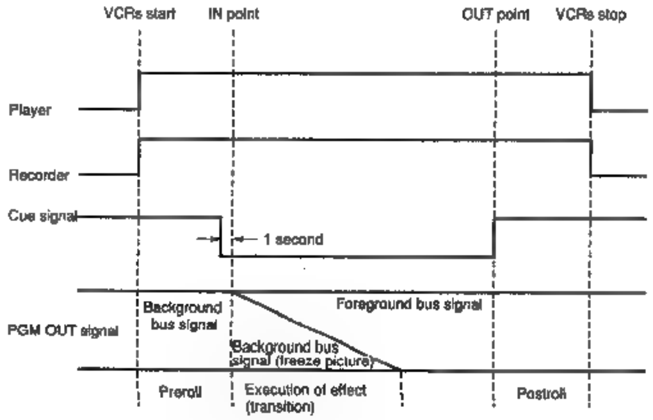
Note

To improve editing accuracy, supply a reference sync signal to the RM-450 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in RM-450 editing

Timing of the cue signal

The timing of the cue signal output by the RM-450 is as follows.


VCRs start
IN point
OUT point
VCRs stop
Player
Recorder
Cue signal
1 second
Background bus signal
Foreground bus signal
PGM OUT signal
Background bus signal (freeze picture)
Preroll
Execution of effect (transition)
Postroll

Timing [illegible] the cue signal

Control From the RM-450

Operation

To perform A-roll editing by controlling the DFS-300/300P from the RM-450, proceed as follows.

For this operation, refer also to the RM-450 Operating Instructions.

1. On the DFS-300/300P, select the player VCR by pressing an appropriate BACKGROUND bus button.

   The player VCR picture appears on the program monitor connected to the DFS-300/300P.

2. On the RM-450, set the player IN and OUT points while watching the program monitor.

3. On the DFS-300/300P, select the player VCR by pressing an appropriate FOREGROUND bus button.

4. On the DFS-300/300P, select the recorder VCR by pressing an appropriate BACKGROUND bus button.

   The recorder VCR picture appears on the program monitor connected to the DFS-300/300P.

5. On the RM-450, set the recorder IN and OUT points while watching the program monitor.

6. On the DFS-300/300P, select an effect, set the transition, and make other settings as required. Check the effect with the fader lever or AUTO TRANS button while viewing the program monitor.

7. On the RM-450, press the AUTO EDIT/END button.

   The effect is executed. The tapes on the recorder and player VCRs run to the preroll point, 5 or 7 seconds before the IN point, and then run in playback mode. At the IN point, the background picture (the picture of the recorder VCR) freezes, the effect begins, and the recorder begins recording.

Notes

- To display the background picture during or after the transition, press the BACKGROUND bus button on the DFS-300/300P.
- Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the RM-450 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.
  Example: If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

Control From the BVE-600

You can combine the DFS-300/300P with the BVE-600 Editing Control Unit to carry out A-roll editing with special effects using one player and one recorder, and A/B roll editing using two players and one recorder.
The BVE-600 controls the DFS-300/300P using the GPI trigger signals T1 and T2.

For the required input and output connections, see "A-Roll Editing System Connections" (page 7-4) and "A/B Roll Editing System Connections" (page 7-6).

Note

You cannot use the built-in switcher of the BVE-600 (BKE-611/612/621/622) when you are using the DFS-300/300P.

Preparations

Make the following preparations to control the DFS-300/300P from the BVE-600.

For details about operation, refer to the BVE-600 Operating Instructions.

On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "BVE-600". Then power the DFS-300/300P on.
- Press the SHIFT button, and check to be sure that the EDITOR/GPI ENABLE button lights (it lights when control by GPI signals is enabled).
  If it does not light, keep the SHIFT button held down and press the EDITOR/GPI ENABLE button so that it does light. Control by GPI signals is enabled automatically when the DFS-300/300P is powered on.
- **If you want to carry out A-roll editing,** check to be sure that the FREEZE FIELD button on the control panel is lit. Note that you must extinguish this button when you execute a cut. (If the editing control unit select switch on the internal SY-199 board is set to "BVE-600", the FREEZE FIELD button lights automatically when you power the DFS-300/300P on.)
- **If you want to carry out A/B roll editing,** press the FREEZE FIELD button to extinguish it.

On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped.
  If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

On the BVE-600

On the rear panel, set S502 DIP switch 2 and S503 DIP switch 3 to the lower position (OFF), and power the BVE-600 on again.
All DIP switches are factory set to the upper position (ON).

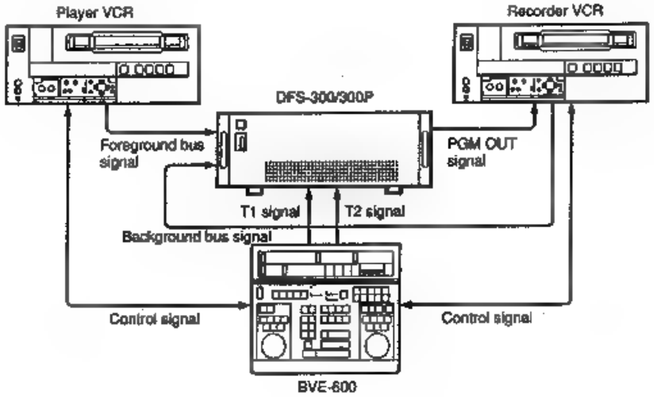
Notes

- To display the background picture during or after a transition, press an appropriate BACKGROUND bus button on the DFS-300/300P.
- Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the BVE-600 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder VCR edit points are not delayed.
  Example: If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

A-Roll Editing

Signal flow

The flow of signals in A-roll editing with the BVE-600 is as follows.


Player VCR
Recorder VCR
DFS-300/300P
Foreground bus signal
PGM OUT signal
T1 signal
T2 signal
Background bus signal
Control signal
Control signal
BVE-600

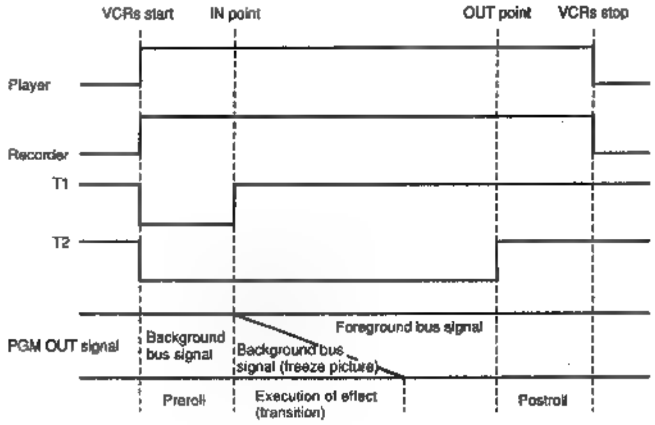
Note

To improve editing accuracy, supply a reference sync signal [illegible] the BVE-600 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A-roll editing

Timing of the trigger (T1/T2) signals

The timing of the trigger signals output by the BVE-600 is as follows.

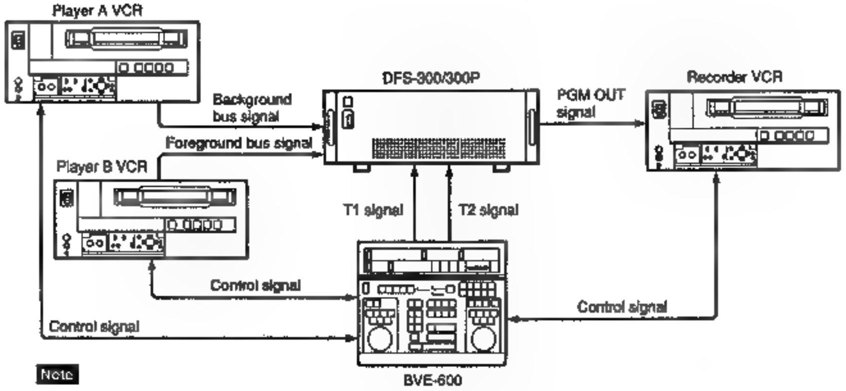

VCRs start
IN point
OUT point
VCRs stop
Player
Recorder
T1
T2
PGM OUT signal
Background bus signal
Background bus signal (freeze picture)
Foreground bus signal
Preroll
Execution of effect (transition)
Postroll

Timing of trigger signals in A-roll editing

A/B Roll Editing

Signal flow

The flow of signals in A/B roll with the BVE-600 editing is as follows.


Player A VCR
DFS-300/300P
Recorder VCR
Background bus signal
PGM OUT signal
Foreground bus signal
Player B VCR
T1 signal
T2 signal
Control signal
Control signal
Control signal
BVE-600

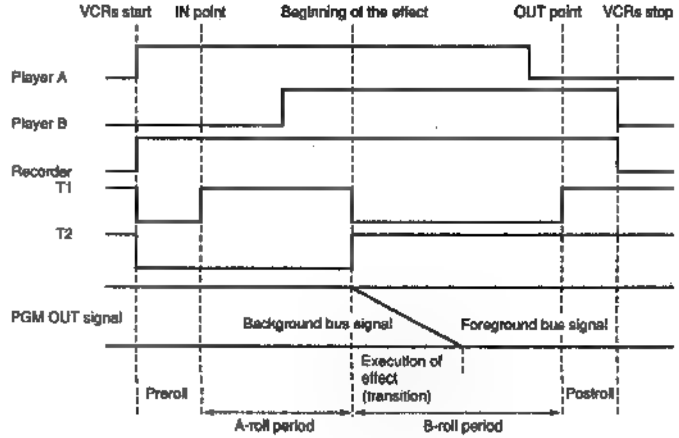
Note

To improve editing accuracy, supply a reference sync signal to the BVE-600 and the VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A/B roll editing

Timing of the trigger (T1/T2) signals

The timing of the trigger signals output by the BVE-600 is as follows.


VCRs start
IN point
Beginning of the effect
OUT point
VCRs stop
Player A
Player B
Recorder
T1
T2
PGM OUT signal
Background bus signal
Foreground bus signal
Execution of effect (transition)
Preroll
Postroll
A-roll period
B-roll period

Timing of trigger signals in A/B roll editing

Control From the BVE-900/2000 Series

You can combine the DFS-300/300P with a BVE-900/910 or BVE-2000 Series Editing Control Unit to carry out A/B roll editing using two players and one recorder.
The editing control unit controls the DFS-300/300P using editor control signals and GPI signals.

Connectable editing control units

To control the DFS-300/300P, the BVE-900/910/2000 and optional BKE-913 board (for BVE-900/910) must have the following ROM versions or higher.

Editing control unit	ROM version
BVE-900	v. 1.11 or higher
BVE-900 with BKE-900K	v. 2.01 or higher
BVE-910	v. 1.02 or higher
BKE-913	v. 1.06 or higher
BVE-2000	v. 1.10 or higher

Control using editor control signals

You can control the following DFS-300/300P functions using 9-pin serial control signals from the BVE-900/910/2000. Input these signals to the EDITOR connector on the rear panel of the DFS-300/300P. (The BVE-900 can control the marked with an asterisk functions only after installation of the optional BKE-900K board.)

- Background picture (FROM source) and foreground picture (TO source) selection
- Pattern number selection
- Transition direction (normal or reverse) selection
- Transition duration selection
- Automatic transition execution
- Downstream key on and off
- Snapshot registration and recall*
- Data save and load (DFS-300/300P snapshot and user program data)*

Downstream key control using GPI signals

You can use signals from the GPI output connector on the BVE-900/910/2000 to turn the DFS-300/300P downstream key function on and off. Input the GPI signals to the T2 connector on the rear panel of the DFS-300/300P. (The BVE-2000 can also use 9-pin serial control signals to turn the downstream key on and off and to set the transition duration.)

Enabling and disabling control by the editor

To enable or disable control of the DFS-300/300P by 9-pin serial control signals and GPI signals, press the EDITOR/GPI ENABLE button on the control panel so that it lights (control enabled) or goes out (control disabled).

- **To enable or disable control by 9-pin serial control signals,** press the EDITOR/GPI ENABLE button alone.
- **To enable or disable control by GPI signals,** press the EDITOR/GPI ENABLE button while pressing the SHIFT button.
  To check whether GPI control is enabled, press the SHIFT button alone to see if the EDITOR/GPI ENABLE button lights (it lights when GPI control is enabled).

Control by both editor control signals and GPI signals is enabled when you power the DFS-300/300P on.

Preparations

Make the following preparations to control the DFS-300/300P from the BVE-900/2000 series.

For details about operation, refer to the Operating Instructions or User's Guide supplied with the editor.

On the DFS-300/300P

- To improve editing accuracy, supply a reference sync signal to the BVE-900/2000 series and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.
- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "PVE-500". Then power the DFS-300/300P on.
- Check the EDITOR/GPI ENABLE button on the control panel to be sure that control by editor control signals or GPI signals is enabled.

For details, see "Enabling and disabling control by the editor" on the previous page.

On the recorder VCR

Set the recorder VCR so that it enters PB (playback) mode when stopped.
If the VCR has a PB, PB/EE selector, set it to "PB".

On the BVE-900/910

Set the PVW (preview) mode to EE.

- **BVE-900 with no BKE-900K installed:** In SYSTEM SETUP mode, set BYTE-1 of the MAIN BLOCK INTERFACE parameter to hexadecimal "01" (EE).
- **BVE-910 and BVE-900 with BKE-900K installed:** In SYSTEM SETUP mode, set PVW MODE under SW'ER CONFIGURATION to "EE".

On the BVE-2000

- In SYSTEM SETUP mode, set PVW MODE under SW'ER CONFIGURATION to "EE".
- In SYSTEM SETUP mode, set SW'ER TYPE under SW'ER CONFIGURATION to "DFS".

Control From the BVE-900/2000 Series

Notes on operation

Editing point delay

Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the BVE-900/910 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.
Example: If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

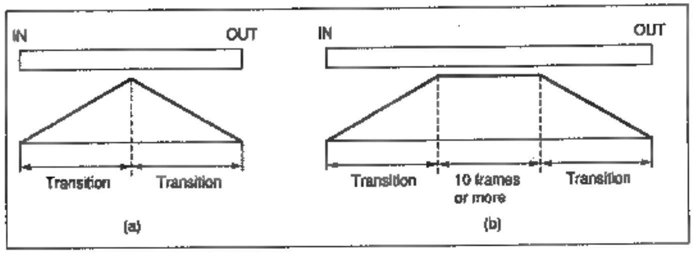
If you are using a BVE-2000 with a ROM version of 2.00 or higher, in SYSTEM SETUP mode under SYSTEM CONFIGURATION you can set the DIGITAL EFFECT DELAY item to 01 so that the BVE-2000 compensates for the delay automatically.

Executing an effect in the reverse direction

- **To execute an effect in the reverse direction from the BVE-900/910,** add 3000 to the DFS-300/300P pattern effect number. However, add 500 to the pattern numbers of user program effects (pattern numbers 9000 and above).
  Examples:
  - To execute effect 25 in the reverse direction, specify pattern number 3025.
  - To execute effect 9203 in the reverse direction, specify pattern number 9703.
- **To execute an effect in the reverse direction from the BVE-2000,** add a minus sign (–) before the DFS-300/300P pattern number.
  Example: To execute effect 25 in the reverse direction, specify pattern number –25.

Effect intervals

Effects cannot be executed if there is no interval between transitions, as shown below in figure (a).
Be sure to leave an interval of 10 frames or more between transitions, as shown in figure (b).



Minimum interval between transitions

Control Using GPI Signals

You can combine the DFS-300/300P with any editing control unit capable of GPI signal output (often called "GPI editor" for simplicity in this manual) to carry out A-roll editing using one player and one recorder, and A/B roll editing using two players and one recorder.
You can use one GPI signal to execute DFS-300/300P effects, and a second GPI signal to turn the downstream key function on and off.

Preparations

Make the following preparations to control the DFS-300/300P using GPI signals output by the editing control unit.

For details about operation, refer to the manuals supplied with your editing control unit.

On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "PVE-500". Then power the DFS-300/300P on.

  For more information about the editing control unit select switch, see page 2-22.

- Press the SHIFT button on the control panel, and check to be sure that the EDITOR/GPI ENABLE button lights (it lights when control by GPI signals is enabled).
  If it does not light, keep the SHIFT button held down and press it so that it does light. Control by GPI signals is enabled when the DFS-300/300P is powered on.
- **If you want to carry out A-roll editing,** check to be sure that the FREEZE FIELD button on the control panel is lit. Note that you must extinguish this button when you execute a cut.
- **If you want to carry out A/B roll editing,** press the FREEZE FIELD button so that it goes out.

On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped.
  If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

On the editing control unit

- Set the GPI signal output timing to 2 frames before the IN point.
- Set the GPI signal pulse width to 1 frame or greater.

Notes

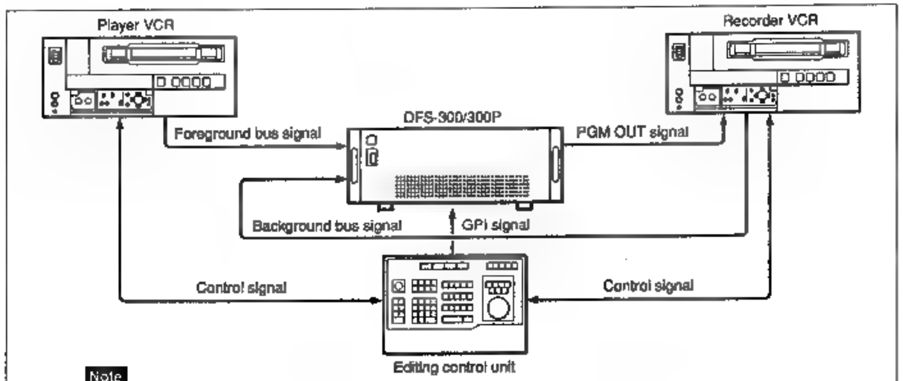
- To display the background picture during or after a transition, press the lit BACKGROUND bus button on the DFS-300/300P.
- Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the editing control unit is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.
  Example: If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

A-Roll Editing

Signal flow

The flow of signals in A-roll editing with GPI editors is as follows.

For more information about connections, see "A-Roll Editing System Connections" (page 7-4).


Player VCR
Recorder VCR
DFS-300/300P
Foreground bus signal
PGM OUT signal
Background bus signal
GPI signal
Control signal
Control signal
Editing control unit

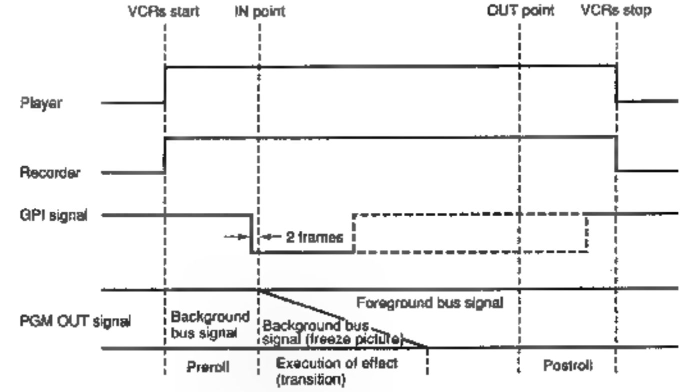
Note

To improve editing accuracy, supply a reference sync signal to the editing control unit and the VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A-roll editing

Timing of the GPI signal

The timing of the GPI signals from the editing control unit is as follows.


VCRs start
IN point
OUT point
VCRs stop
Player
Recorder
GPI signal
2 frames
PGM OUT signal
Background bus signal
Foreground bus signal
Background bus signal (freeze picture)
Preroll
Execution of effect (transition)
Postroll

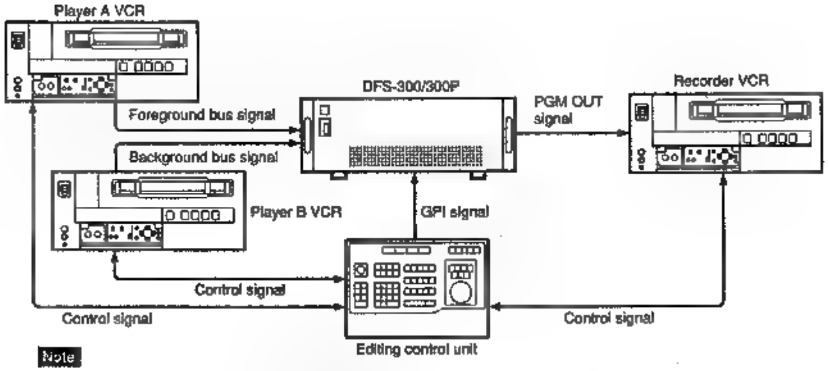
GPI signal timing in A-roll editing

A/B Roll Editing

Signal flow

The flow of signals in A/B roll editing with GPI editors is as follows.

For more information about connections, see "A/B Roll Editing System Connections" (page 7-5).


Player A VCR
DFS-300/300P
PGM OUT signal
Recorder VCR
Foreground bus signal
Background bus signal
Player B VCR
GPI signal
Control signal
Control signal
Control signal
Editing control unit

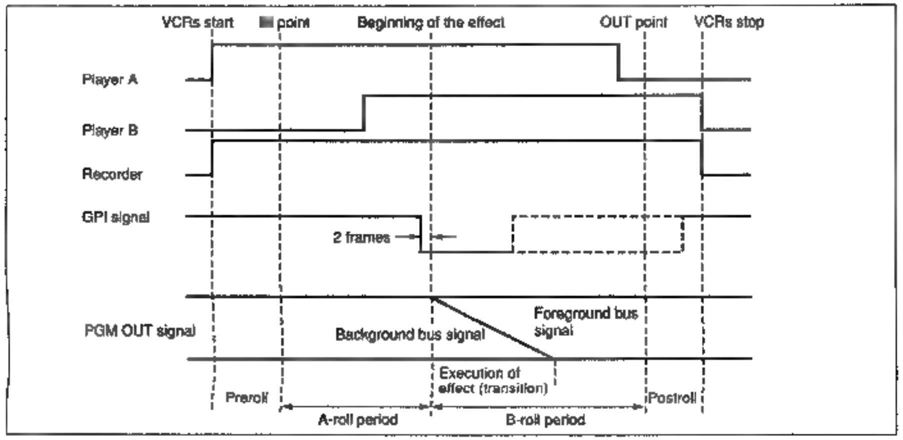
Note

To improve editing accuracy, supply a reference sync signal to the editing control unit and the VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A/B roll editing

Timing of the GPI signal

The timing of the GPI signal from the editing control unit is as follows.

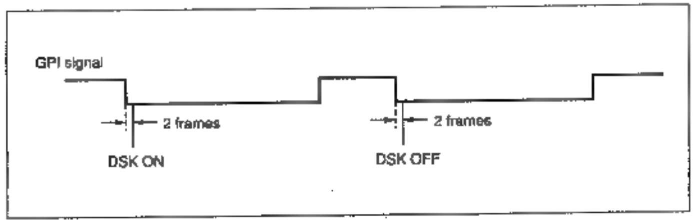

VCRs start
IN point
Beginning of the effect
OUT point
VCRs stop
Player A
Player B
Recorder
GPI signal
2 frames
PGM OUT signal
Background bus signal
Foreground bus signal
Execution of effect (transition)
Preroll
A-roll period
B-roll period
Postroll

Timing of GPI signal in A/B roll editing

Control Using GPI Signals

Turning a downstream key on and off

If you have set the editing control unit select switch to "PVE-500", you can turn a downstream key on and off using a GPI signal input to the T2 connector on the DFS-300/300P. As shown below, the downstream key is turned alternately on and off at the trailing edge of the GPI signal.


GPI signal
2 frames
2 frames
DSK ON
DSK OFF

Turning a downstream key on and off — GPI signal timing

Chapter 7
Connections and System Settings

This chapter describes how to connect the DFS-300/300P to your video system, how to set its internal switches, and how to install the BKDF-504/504P DSK Board.

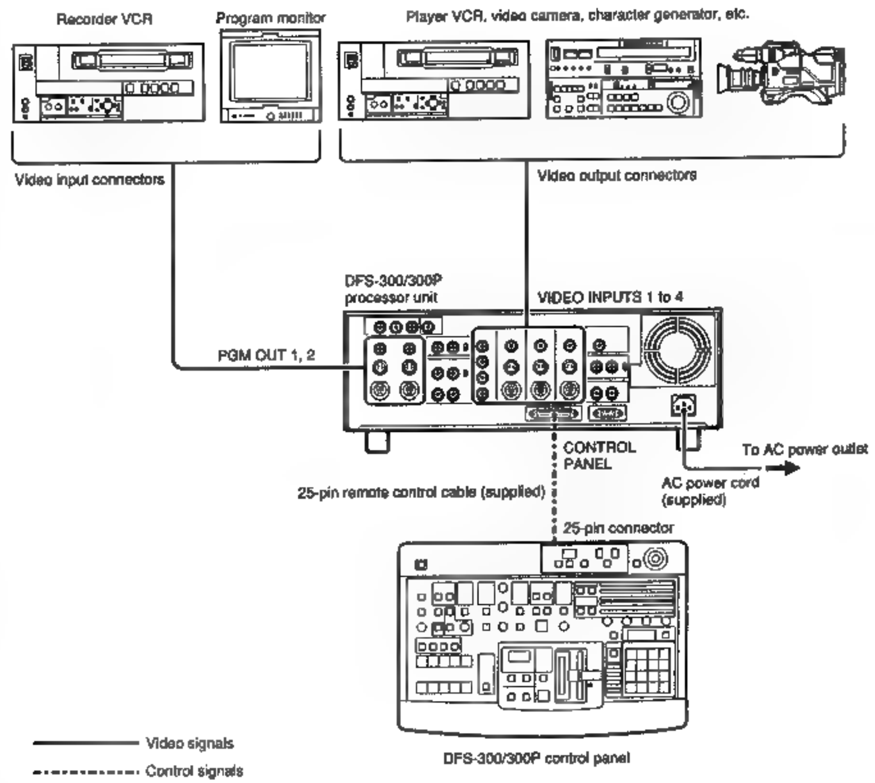
Connections 7-2
  Essential System Connections 7-2
  Key Signal Connections 7-3
  A-Roll Editing System Connections 7-4
  A/B Roll Editing System Connections 7-5
Settings of the Internal Switches 7-7
Power Supply and Initialization 7-8
Installation of Optional Boards 7-10

Connections

Be sure to power off all equipment before making any connections.

Essential System Connections

The connections for essential input and output signals are shown below.

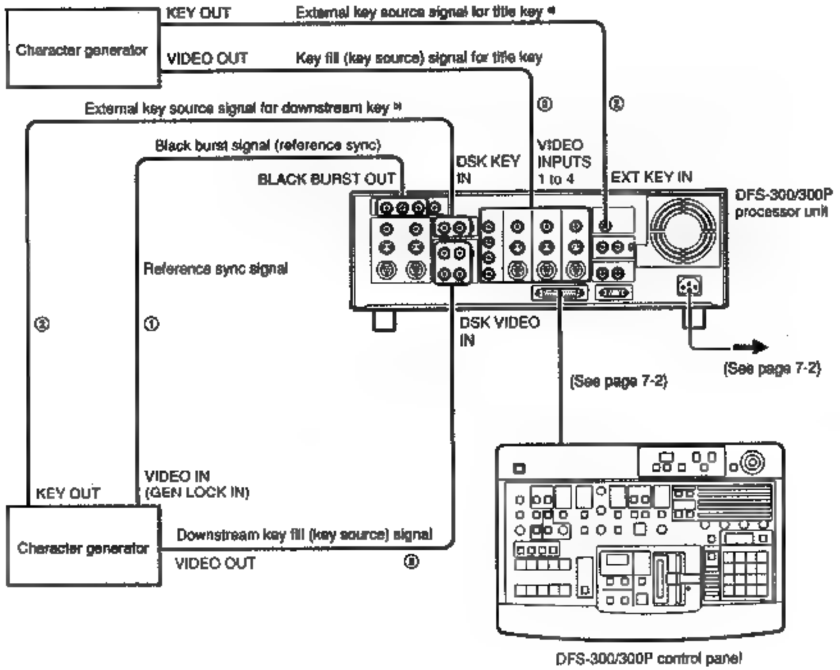

Recorder VCR
Program monitor
Player VCR, video camera, character generator, etc.
Video input connectors
Video output connectors
DFS-300/300P processor unit
VIDEO INPUTS 1 to 4
PGM OUT 1, 2
CONTROL PANEL
To AC power outlet
AC power cord (supplied)
25-pin remote control cable (supplied)
25-pin connector
DFS-300/300P control panel
Video signals
Control signals

The cable used to connect the DFS-300/300P and a VCR depends on the type ■ VCR.
Refer ■ the instruction manual provided with your VCR.

Essential system connections

Key Signal Connections

Below are the connections necessary for title key and downstream key (DSK) signals. These signals allow you to superimpose characters and graphics on a picture.


Character generator
KEY OUT
External key source signal for title key a)
VIDEO OUT
Key fill (key source) signal for title key
External key source signal for downstream key b)
Black burst signal (reference sync)
BLACK BURST OUT
DSK KEY IN
VIDEO INPUTS 1 to 4
EXT KEY IN
①
②
DFS-300/300P processor unit
Reference sync signal
DSK VIDEO IN
(See page 7-2)
(See page 7-2)
KEY OUT
VIDEO IN (GEN LOCK IN)
Character generator
Downstream key fill (key source) signal
VIDEO OUT
DFS-300/300P control panel

Cables
① 75Ω coaxial cable
② Cable depends on the type of character generator. Refer to the instruction manual provided with the character generator.

a) This connection is unnecessary when the luminance signal of a signal input to a VIDEO INPUTS connector is used as the title key source signal.
b) This connection is unnecessary when the luminance signal of the signal input to the DSK VIDEO IN connector ■ used as the downstream key source signal.

Key signal connections

Notes

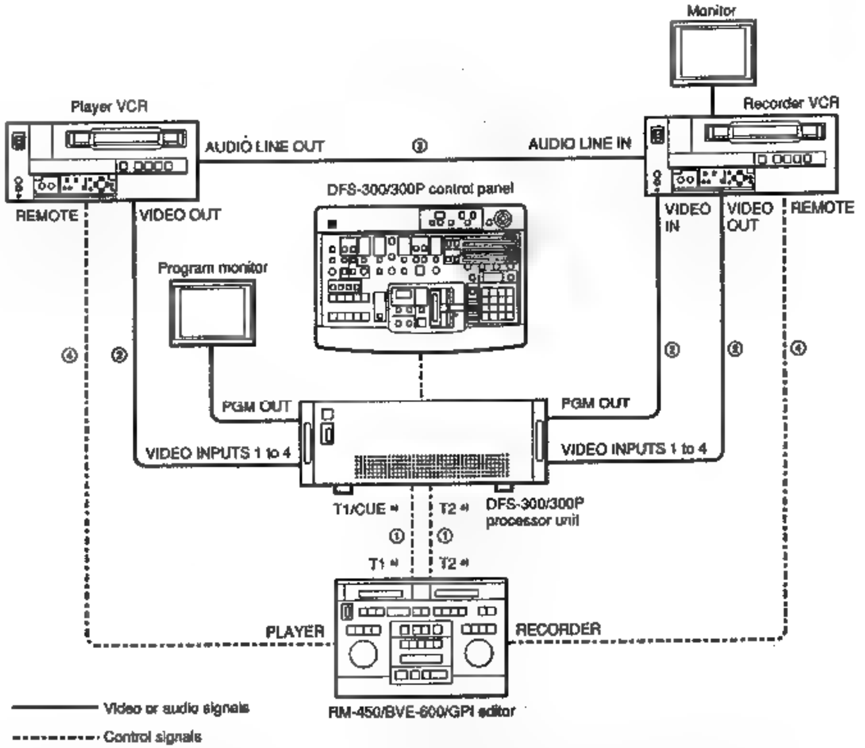
- Downstream key signals must be synchronized with the internal sync signal of the DFS-300/300P. Be sure to supply a signal from the BLACK BURST OUT connectors to the downstream key source equipment.
- Title key and downstream key signals are processed in 1 bit. If you cannot obtain the desired key shape when using VCR playback as the key source, supply high-quality key signals from equipment such as a character generator.

A-Roll Editing System Connections

The following diagram indicates the connections necessary to construct an A-roll editing system comprised of the DFS-300/300P, the RM-450 or BVE-600 Editing Control Unit, a player VCR, and a recorder VCR. You can also use this configuration to construct an A-roll editing system around other editors that support output of GPI signals.

Note

You cannot use the RM-440 Editing Control Unit with the DFS-300/300P.


Monitor
Player VCR
Recorder VCR
AUDIO LINE OUT
③
AUDIO LINE IN
DFS-300/300P control panel
REMOTE
VIDEO OUT
VIDEO IN
VIDEO OUT
REMOTE
Program monitor
④
②
②
②
④
PGM OUT
PGM OUT
VIDEO INPUTS 1 to 4
VIDEO INPUTS 1 to 4
T1/CUE a)
T2 a)
DFS-300/300P processor unit
①
①
T1 a)
T2 a)
PLAYER
RECORDER
RM-450/BVE-600/GPI editor
Video or audio signals
Control signals

Cables
① 75Ω coaxial cable
② Cable depends on the type of VCR. Refer to the instruction manual provided with the VCR.
③ Cable with XLR 3-pin connectors
④ RCC-5G/10G/30G 9-pin remote control cable or RCC-5F 33-pin remote control cable

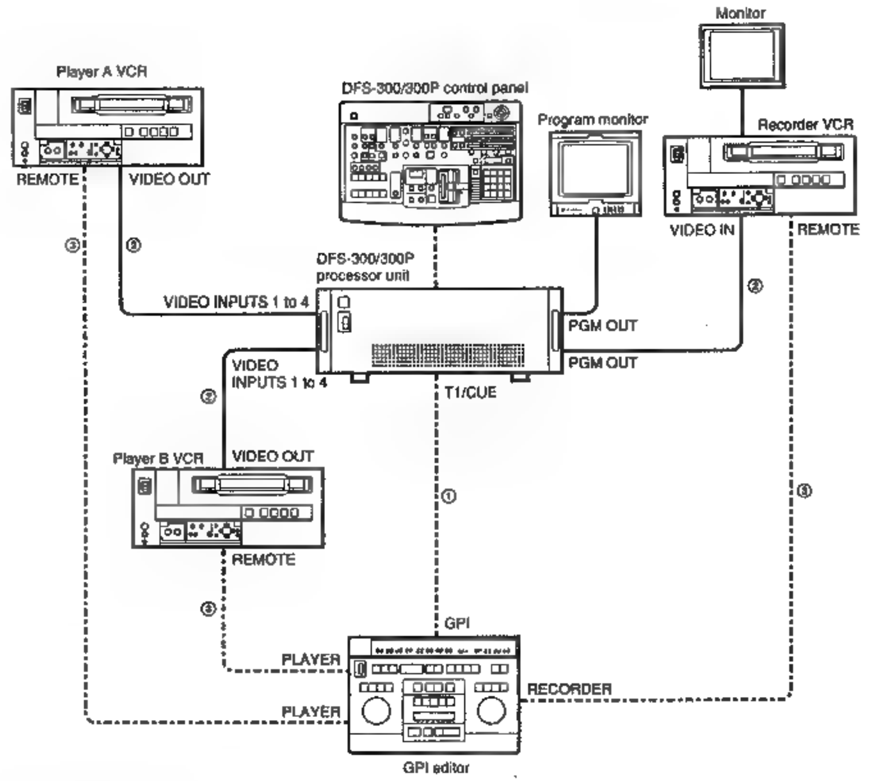
■ Connections between the DFS-300/300P and the editing control unit are as follows.
RM-450: Connect the CUE signal of the RM-450 to the T1/CUE connector of the DFS-300/300P.
BVE-600: Connect the T1 and T2 signals of the BVE-600 to the T1/CUE and T2 connectors of the DFS-300/300P, respectively.
GPI editor: Connect the GPI output signal of the editor to the T1/CUE connector of the DFS-300/300P.

A-roll editing system connections

A/B Roll Editing System Connections

The following diagram indicates the connections necessary to construct an A/B roll editing system comprised of the DFS-300/300P, the PVE-500 or BVE-600/900/910/2000 Editing Control Unit, two player VCRs, and a recorder VCR. You can also use this configuration to construct an A/B roll editing system around other editors that support output of GPI signals.

Using GPI signals


Monitor
Player A VCR
DFS-300/300P control panel
Program monitor
Recorder VCR
REMOTE
VIDEO OUT
VIDEO IN
REMOTE
③
②
②
DFS-300/300P processor unit
VIDEO INPUTS 1 to 4
PGM OUT
PGM OUT
VIDEO INPUTS 1 to 4
②
T1/CUE
Player B VCR
VIDEO OUT
①
③
REMOTE
③
GPI
PLAYER
RECORDER
PLAYER
GPI editor

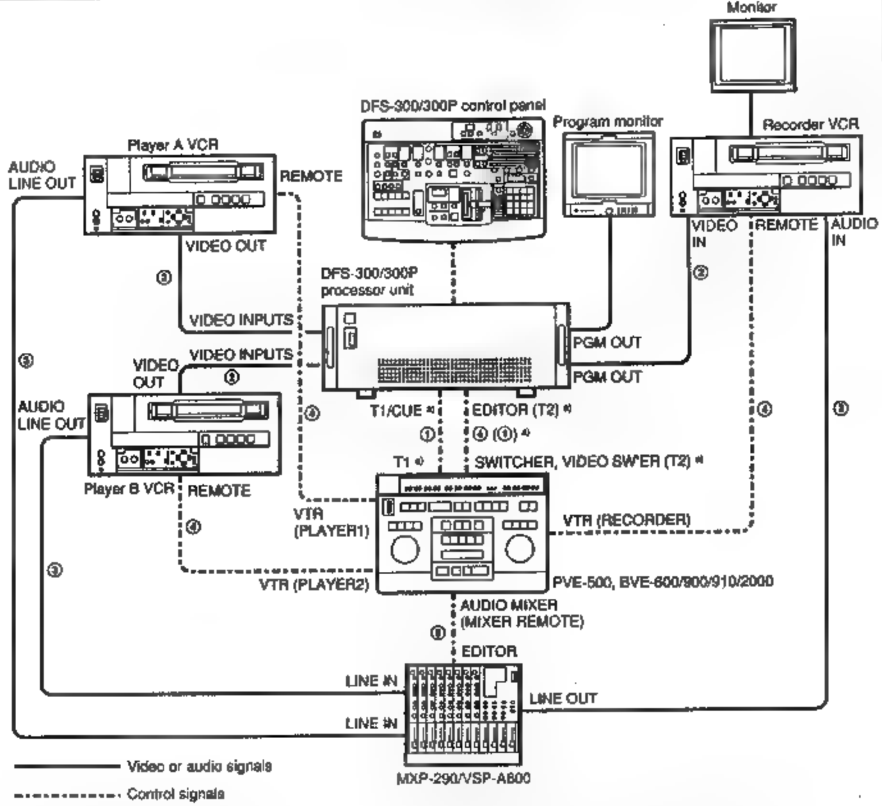
——— Video signals

-·-·-·-·- Control signals

Cables
① 75Ω coaxial cable
② Cable depends on the type of VCR. Refer to the instruction manual provided with the VCR.
③ RCC-5G/10G/30G 9-pin remote control cable or RCC-5F 33-pin remote control cable

A/B roll editing system connections (1) — Using GPI signals

Using the PVE-500, BVE-600/900/910/2000


Monitor
DFS-300/300P control panel
Program monitor
Recorder VCR
Player A VCR
AUDIO LINE OUT
REMOTE
VIDEO OUT
VIDEO IN
REMOTE
AUDIO IN
②
DFS-300/300P processor unit
②
VIDEO INPUTS
③
VIDEO OUT
VIDEO INPUTS
②
PGM OUT
PGM OUT
AUDIO LINE OUT
④
T1/CUE a)
EDITOR (T2) a)
①
④ (①) a)
T1 a)
SWITCHER, VIDEO SW'ER (T2) a)
④
③
Player B VCR
REMOTE
VTR (PLAYER1)
VTR (RECORDER)
④
③
VTR (PLAYER2)
PVE-500, BVE-600/900/910/2000
AUDIO MIXER (MIXER REMOTE)
⑤
EDITOR
LINE IN
LINE OUT
LINE IN
MXP-290/VSP-A800

——— Video or audio signals

-·-·-·-·- Control signals

Cables
① 75Ω coaxial cable
② Cable depends on the type ■ VCR. Refer to the instruction manual provided with the VCR.
③ Cable with XLR 3-pin connectors
④ RCC-5G/10G/30G 9-pin remote control cable
⑤ Audio mixer control cable (PVE-500: RCC-5AA; BVE-600: supplied; BVE-900/910: supplied with BKE-916A; BVE-2000: RCC-11A)

a) Connections between the DFS-300/300P and the editing control unit are as follows.
PVE-500: Connect the SWITCHER connector of the PVE-500 to the EDITOR connector of the DFS-300/300P.
BVE-600: Connect the T1 and T2 signals of the BVE-600 ■ the T1/CUE and T2 connectors of the DFS-300/300P, respectively.
BVE-900/910/2000: Connect the VIDEO SW'ER connector of the BVE-900/910/2000 to the EDITOR connector of the DFS-300/300P.

A/B roll editing system connections (2) — Using the PVE-500, BVE-600/900/910/2000

Note

Optional interface boards (BKE-904, BKE-913, BKE-916A) must be installed in the BVE-910 to enable connections to the DFS-300/300P, the VCRs, and the MXP-290 or VSP-A600.

For details, refer to the instruction manual of the BVE-910.

Settings of the Internal Switches

When you have completed the connections, set the switches below according to the connected equipment.

Notes

- Changing the settings has no effect while the processor unit is powered on. Always power the processor unit off before setting the switches.
- You also need to change settings on editing control units, video switchers, and other connected equipment.

For details, see Chapter 6 "Control From Editing Control Units"

Setting the input signal format: IN 1, 2, 3, 4 switches (AD-104 board)

For the positions of these switches, see page 2-21.
Set these switches according to the format of the video signals input to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel.

IN 1, 2, 3 switches

Set the format of the signals input to the VIDEO INPUTS 1, 2, 3 connectors.
COMPOSITE (left): Composite video signal
Y/C (center): S-video (Y/C separate) signal
COMPONENT (right): Betacam-format component video signal
All three switches are factory preset to "COMPOSITE".

IN 4 switch

Set the format of the signal input to the VIDEO INPUTS 4 connector.
Y/R–Y/B–Y (left): Betacam-format component video signal
RGB (center): RGB signal, G signal with SYNC
RGBS (right): RGB signal, G signal without SYNC
When you select RGBS format, you must input a sync signal to the VIDEO INPUTS 4 SYNC connector.
This switch is factory preset to "Y/R–Y/B–Y".

Setting the control mode: editing control unit select switch (SY-199 board)

For the position of this switch, see page 2-22.

Set the switch according to the connected editing control unit.
RM-450: RM-450 Editing Control Unit
BVE-600: BVE-600 Editing Control Unit
PVE-500: PVE-500 or BVE-900/910/2000 Series Editing Control Unit. Set the switch to this setting when using the DFS-300/300P as a stand-alone unit without connecting an editor, or when controlling it with GPI signals.
This switch is factory preset to "PVE-500".

Setting the DSK key fill signal format: DSK VIDEO SELECT switch (DA-79 board)

For the position of this switch, see page 2-23.

Select the format of the video signal input to the DSK VIDEO IN connector on the rear panel.
COMPOSITE: Composite video signal
Y/R–Y/B–Y: Betacam-format component video signal with luminance (Y) and color difference (R–Y, B–Y) components.
R/G/B: RGB signal
This switch is factory preset to "R/G/B".

Power Supply and Initialization

Power supply

The DFS-300 operates on 120 V AC power (90 to 132 V AC, 48 to 63 Hz), and the DFS-300P on 220 to 240 V AC power (180 to 264 V AC, 48 to 63 Hz). Connect the unit to an appropriate power source using the supplied AC power cord.

About the backup battery

When you power the DFS-300/300P on to use it for the first time, the control panel is set to the factory default settings. When you power it on for the second and subsequent times, the unit's resume function sets the control panel to the settings in force when the power was turned off.
Power for the resume function and other system memory functions is drawn from a nickel-cadmium backup battery located on the SY-199 board inside the processor unit. Before using the DFS-300/300P for the first time, charge the battery fully by leaving the DFS-300/300P on for at least 8 hours.
If the DFS-300/300P is not used for a month or more, the battery loses its charge and your data for items ① to ④ below is lost. In this case, a warning message appears when the unit is next powered on to warn you that data has been lost and that the control panel and system settings have been initialized to the factory defaults. To prevent this from happening, you should turn the DFS-300/300P on occasionally to keep the battery charged.
① Control panel settings in force when power is turned off (resume function)
② User program effect data
③ Snapshot data
④ Direct pattern assignments

About warning messages, see "Warnings and Error Messages" (pege A-2).

Replacing the backup battery

The backup battery is guaranteed to last for about 5 years under normal operating conditions. Replace it with a new one at the appropriate time.
Regarding battery replacement, contact your Sony dealer or an authorized Sony representative.

Note

Data items ① to ④ listed on the previous page are lost when the battery is replaced. After replacing the battery, leave the DFS-300/300P on for at least [illegible] hours to charge it fully.

Initializing control panel and user data to the factory defaults

Initializing the control panel to the factory defaults

If you lose track of control panel settings during a complicated operation, you can recall the factory default settings with the following procedure. (Note that it does not help to turn the DFS-300/300P off and on again, because the current settings will be recalled by the resume function.)

1. If the EDIT button in the USER PGM section is lit, press it so that it goes out.
2. Press the EDITOR/GPI ENABLE button while holding down the P IN P/RST and DOWN buttons in the keypad section.

   A buzzer sounds, and the factory default settings are restored.

Initializing the control panel and user data at the same time

To restore all direct pattern assignments, user program data, snapshot data, and control panel settings to the factory defaults, power the DFS-300/300P on while holding down the P IN P/RST and DOWN buttons in the keypad section.

Initializing user data only

See the pages listed below for the procedures used to initialize user data.

- Direct pattern assignments: page 5-3
- User program data: page 5-19
- Snapshot data: page 5-23

Installation of Optional Boards

Two optional boards are available for installation in the DFS-300/300P: the BKDF-301/301P 3D Effect Option, and the BKDF-504/504P DSK Board.

- To install the BKDF-301/301P board, refer to the installation instructions supplied with the board.
- To install the BKDF-504/504P board, read the following and contact your Sony dealer.

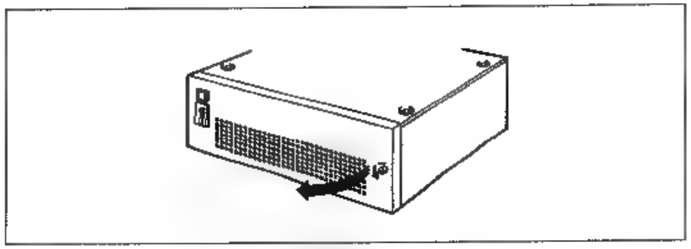
  The installation instructions supplied with the BKDF-504/504P board show how to install the board in the DFS-500 DME witcher. The position, name, and diagrams given for the internal board in the installation instructions do not apply to the DFS-300/300P, and the ROM exchange mentioned in the installation instructions is not necessary when installing the BKDF-504/504P board in the DFS-300/300P.

Contact your Sony dealer before installing these optional boards.

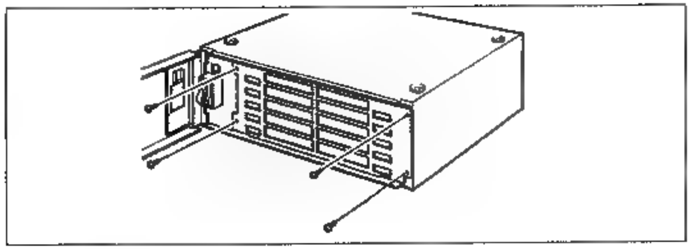
Installing the BKDF-504/504P DSK Board

The optional BKDF-504/504P DSK Board provides a downstream key function for the DFS-300/300P. It installs on the DA-79 board inside the processor unit. To install the BKDF-504/504P board, proceed as follows.

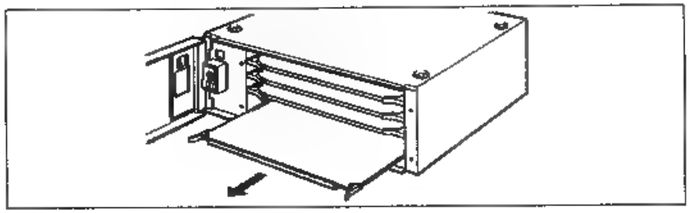
1. Power the DFS-300/300P processor unit off, and loosen the screw to open the front panel.



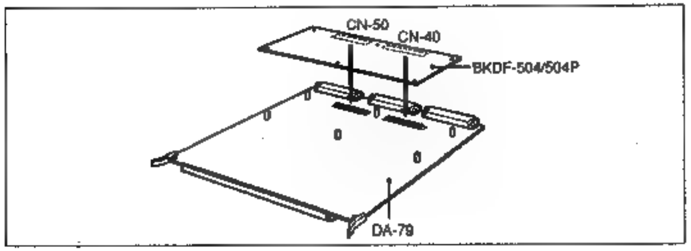
2. Remove the circuit board retainer plate.



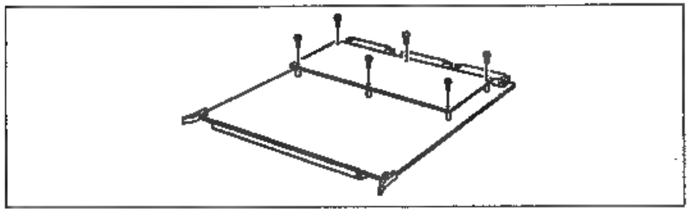
3 Remove the DA-79 board from the lowermost slot by opening the right and left levers toward the outside.



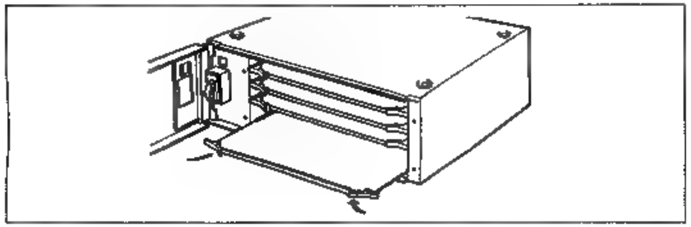
4 Press the CN-40 and CN-50 connectors on the BKDF-504/504P board into the CN-40 and CN-50 connectors on the DA-79 board. Press firmly until they make a complete connection.



5 Fasten the BKDF-504/504P board to the DA-79 board, using the six screws supplied with the DFS-300/300P.



6 Return the DA-79 board to its original position in the processor unit.



Appendixes

Warnings and Error Messages A-2
Types of Effects A-3
Effect Parameters A-4
Effects Classified by Direction Type A-6
Effect Control Parameters A-7
Effect Pattern Image List A-11
Additional Functions A-28
Specifications A-34
Glossary A-37

Warnings and Error Messages

Warnings

If the DFS-300/300P is left off for more than a month, the backup battery loses its charge and the contents of backup memory are initialized to the factory default settings.

The DFS-300/300P checks the contents of backup memory when it is powered on, and displays a 4-letter warning if it discovers default data. Warnings appear in the PATTERN NUMBER display window of the control panel, alternating with the current effect pattern number.

Warning messages

Message	Meaning
bu01	User program effect memory has been initialized.
bu02	Snapshot memory has been initialized.
bu04	Direct pattern assignments have been initialized.
bu10	Resume memory (containing control panel settings in force when the DFS-300/300P was powered off) has been initialized.

Note

Multiple warnings are displayed as the sum of individual warning numbers.

What to do if a warning appears

Leave the DFS-300/300P on for at least 8 hours to charge the backup battery fully. The warning message disappears when you operate one of the buttons or controls on the control panel, or power the DFS-300/300P on again.

Error messages

A 4-letter error message appears in the PATTERN NUMBER display window if a system error occurs during operation of the DFS-300/300P.

Error messages

Message	Meaning
Er01	Synchronization signals are not being sent correctly from the processor unit [illegible] the control panel.
Er02	Communications error between the processor unit and the control panel
Er10	Error in control panel ROM
Er20	Error in control panel RAM
Er40	Error in processor unit RAM

Note

Multiple errors are displayed as the sum of individual error numbers.

What to do if an error message appears

Contact your Sony dealer or an authorized Sony representative.

Types of Effects

The effects of the DFS-300/300P are divided into the following types. Multiple effect patterns are available within each type.
Effect pattern numbers 1000 and above designate digital-multi effects (DME).
Effect pattern numbers 9000 and above designate user program effects.

Types of effects

Pattern No.	Types of effects	Varieties in standard configuration	Varieties with BKDF-301/301P installed	Reference page no.
1 to 676	Wipe	70	70	A-11
700 to 809	Matrix wipe	37	37	A-12
900 to 903	Page turn wipe	4	4	A-13
1000 to 1018	Mosaic	10	10	A-13
1020 to 1027	Still mirror	8	8	A-14
1030 to 1058	Y&C modify	10	10	A-14
1059	Cut	1	1	A-14
1060 to 1068	Freeze, strobe, cinema	6	6	A-15
1070, 1071	Drop shadow	2	2	A-15
1075	Cropping	1	1	A-15
1080	Mix	1	1	A-15
1100 to 1116	Picture-in-picture	12	12	A-15
1130, 1131	Zoom up	2	2	A-15
1141 to 1144	Active lighting	4	4	A-15
1150 to 1156	Spotlight, center image	4	4	A-16
1160 to 1163	Camera viewfinder, video camera viewfinder	4	4	A-16
1170, 1171	Arrow mark, finger	2	2	A-16
1200 to 1207	Dynamic mirror	8	8	A-16
1210 to 1213	Stream	4	4	A-16
1230 to 1233	Accordion	0	4	A-16
1240, 1241	Multi-screen	0	2	A-17
1250 to 1271	Wave modulation	0	16	A-17
1280 to 1283	Real paint	0	4	A-17
1285, 1286	Stained glass	0	2	A-17
1300 to 1307	Slide	8	8	A-17
1330 to 1394	Split slide	26	32	A-18
1403 to 1451	Multi-split	0	6	A-19
1500 to 1524	Compression	20	20	A-20
1530 to 1535	Expand	6	[illegible]	A-20
1600 to 1613	Two-dimensional rotation	12	12	A-21
1620 to 1644	Two-dimensional rotation + Compression + Slide	6	6	A-21
1690	Two-dimensional rotation + Compression + Slide (modified)	1	1	A-21
1700 to 1707	Three-dimensional rotation	0	8	A-21
1730 to 1742	Door	0	[illegible]	A-22
1750 to 1753	Split three-dimensional rotation	0	4	A-22
1760 to 1824	Three-dimensional rotation + Compression + Slide	24	24	A-23
1850 to 1855	Album page turn	6	6	A-24
1900 to 1964	Flip, tumble	31	35	A-24
2000 to 2006	Twist	0	4	A-25
2100 to 2144	Page turn	0	40	A-26
2150 to 2154	Page turn (modified)	0	5	A-27
2160 to 2167	Split page turn	0	8	A-27
2200 to 2213	Sphere	0	9	A-27
2250, 2251	Picture-in-picture (sphere)	0	2	A-27
9000 to 9009	Linear user program (transition)	10	10	5-10
9100 to 9109	Linear user program (animation)	10	10	5-10
9200 to 9209	Nonlinear user program (transition)	0	10	5-10
9300 to 9309	Nonlinear user program (animation)	0	10	5-10
Total		350	500	—

Effect Parameters

The table below lists the parameters which can be used to specify the edge type, location, or function of DFS-300/300P effects. It also shows whether the effects can be applied to title keys, and whether they use the effect color matte.

Meaning of headings

EDGE: Change the edge of the effect (B: border, S: soft edge).
LOCATION: Change the location or size of the effect.
EFFECTS CONTROL: Rotate the parameter adjustment knobs (F1 to F4) to change the effect.
TITLE: Can be applied to a title key.
EFFECT MATTE: Uses the effect color matte.

Effect parameters

Y: Can be used N: Cannot be used *: Available when BKDF-301/301P option board is installed

Pattern No.	EDGE		LOCATION			EFFECTS CONTROL				TITLE	EFFECT MATTE
	B	S	X	Y	Z	F1	F2	F3	F4		
1 to 23	Y	Y	N	N	N	N	N	N	N	Y	N
24, 26	Y	Y	Y	Y	N	N	N	N	N	Y	N
30 to 678	Y	Y	N	N	N	N	[illegible]	N	N	Y	[illegible]
900 to 903	N	N	N	[illegible]	N	Y	N	N	N	Y	Y
1000 to 1006	[illegible]	N	[illegible]	N	N	N	N	N	N	Y	N
1010, 1011	N	N	[illegible]	[illegible]	N	Y	Y	N	N	Y	[illegible]
1015 to 1018	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N
1020 to 1027	[illegible]	N	N	N	N	[illegible]	N	[illegible]	N	Y	N
1030 to 1033	N	[illegible]	N	N	N	N	N	N	N	Y	[illegible]
1040 to 1046	[illegible]	[illegible]	[illegible]	N	N	Y	[illegible]	N	N	Y	N
1050	[illegible]	[illegible]	[illegible]	N	N	Y	Y	N	N	Y	N
1055 to 1058	Y	Y	Y	Y	Y	Y	Y	N	Y	[illegible]	[illegible]
1059	N	[illegible]	N	N	[illegible]	N	N	N	N	Y	[illegible]
1060, 1061	[illegible]	N	N	N	N	[illegible]	N	N	N	Y	N
1065	N	N	N	N	[illegible]	Y	N	N	[illegible]	Y	[illegible]
1066, 1067	Y	Y	N	Y	N	Y	Y	Y	[illegible]	Y	[illegible]
1068	N	N	N	N	N	Y	N	N	N	N	N
1070, 1071	Y	N	Y	Y	Y	Y	Y	Y	N	N	Y
1075	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
1080	N	N	N	[illegible]	[illegible]	N	[illegible]	N	N	Y	N
1100, 1101	Y	N	Y	Y	[illegible]	N	N	N	[illegible]	Y	N
1102, 1103	Y	N	Y	Y	Y	Y	Y	Y	*	Y	N
1104, 1105	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
1106 to 1109	Y	[illegible]	Y	Y	Y	Y	Y	Y	*	Y	N
1115, 1116	Y	N	Y	Y	Y	N	N	N	N	Y	N
1130, 1131	Y	N	Y	Y	N	N	N	N	N	Y	N
1141 to 1144	N	N	N	N	N	Y	N	N	N	N	Y
1150, 1151	Y	N	Y	Y	Y	Y	N	N	Y	Y	N
1155, 1156	N	N	Y	Y	Y	Y	[illegible]	N	Y	Y	[illegible]
1160	N	[illegible]	[illegible]	[illegible]	N	Y	Y	Y	N	N	Y
1161	[illegible]	N	[illegible]	N	N	Y	[illegible]	N	N	N	Y
1162	[illegible]	[illegible]	N	N	N	Y	Y	N	N	N	Y
1163	N	N	[illegible]	N	N	Y	Y	Y	N	N	Y
1170, 1171	N	N	Y	Y	Y	Y	Y	Y	[illegible]	N	Y

Effect parameters (Continued)

Y: Can be used N: Cannot be used *: Available when BKDF-301/301P option board is installed

Pattern No.	EDGE		LOCATION			EFFECTS CONTROL				TITLE	EFFECT MATTE
	B	S	X	Y	Z	F1	F2	F3	F4		
1200 to 1207	Y	N	N	N	N	N	N	N	N	Y	N
1210 to 1213	N	N	N	N	N	Y	N	N	N	Y	N
1230 to 1233	Y	N	N	N	N	N	N	N	N	Y	N
1240*, 1241*	Y	N	N	N	Y	N	N	N	N	Y	N
1250*, 1251*	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
1252*, 1253*	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N
1260* to 1269*	Y	N	N	N	N	N	N	N	N	Y	N
1270*	Y	N	Y	Y	N	Y	N	Y	Y	Y	N
1271*	Y	N	Y	Y	N	Y	Y	Y	Y	Y	N
1280* to 1283*	N	N	N	N	N	Y	Y	N	N	Y	N
1285*, 1286*	Y	Y	N	N	N	Y	Y	N	N	Y	N
1300 to 1349	Y	N	N	N	N	N	N	N	N	Y	N
1350, 1351	N	N	N	N	N	N	N	N	N	Y	N
1360 to 1373	Y	N	N	N	N	N	N	N	N	Y	N
1380	Y	N	N	N	N	Y	Y	Y	N	Y	N
1381* to 1383*	Y	N	N	N	N	Y	Y	Y	N	Y	N
1385	Y	N	N	N	N	Y	Y	Y	N	Y	N
1386* to 1388*	Y	N	N	N	N	Y	Y	Y	N	Y	N
1390 to 1394	Y	N	N	N	N	Y	N	N	N	Y	N
1403 to 1451	N	N	N	N	N	N	N	N	N	Y	N
1500 to 1524	Y	N	N	N	N	N	N	N	N	Y	N
1530 to 1535	N	N	N	N	N	N	N	N	N	Y	N
1600 to 1644	Y	N	N	N	N	N	N	N	N	Y	N
1690	Y	N	Y	Y	N	Y	Y	Y	Y	Y	N
1700* [illegible] 1742*	Y	N	N	N	N	N	N	N	N	Y	N
1750* to 1753*	Y	N	N	N	N	Y	N	N	N	Y	N
1760 to 1901	Y	N	N	N	N	N	N	N	N	Y	N
1902*, 1905*	Y	N	N	N	N	N	N	N	N	Y	N
1906 to 1911	Y	N	N	N	N	N	N	N	N	Y	N
1912*, 1916*	Y	N	N	N	N	N	N	N	N	Y	N
1920 to 1964	Y	N	N	N	N	N	N	N	N	Y	N
2000* to 2144*	Y	N	N	N	N	N	N	N	N	Y	N
2150* to 2154*	Y	N	N	N	N	Y	Y	N	N	Y	N
2160* to 2167*	Y	N	N	N	N	Y	N	N	N	Y	N
2200* to 2213*	Y	N	N	N	N	N	N	N	N	Y	N
2250*, 2251*	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N

Effects Classified by Direction Type

The effects of the DFS-300/300P can be classified by their direction type, as follows.

Effects classified by direction type

Direction type	Characteristics	Pattern No.
Transition type	When you move the fader from one end to the other and back, the effect is executed in the same direction. Crosspoints selected with the BACKGROUND and FOREGROUND bus buttons change when the effect is executed.	1 to 1000 1003 to 1010 1059 1080 1115 to 1116 1200 to 1233 1260 to 1271 1300 to 2213 9000 to 9009 9200 to 9209
Animation type	• When you move the fader from one end to the other and back, the effect is executed in the opposite direction. Crosspoints selected with the BACKGROUND and FOREGROUND bus buttons do not change. • If the editing control unit select switch (see page 2-22) is set to PVE-500, the NORM/REV indicator lights during execution of the effect.	1001 1011 to 1058 1060 to 1075 1100 to 1109 1130 to 1171 1240 to 1253 1280 to 1286 2250 to 2251 9100 to 9109 9300 to 9309

Effect Control Parameters

The effects listed below have attributes that can be adjusted by rotating the parameter adjustment knobs (F1 to F4) in the EFFECTS CONTROL section.

General format

Pattern No.	Type of effect		
	Adjustment knob	**Attribute**	**Adjustment range** **Min: Control turned fully clockwise** **Max: Control turned fully counterclockwise**

Effect control parameters

901 902 903	Page turn wipe		
	F1	Page turn direction	Lower left/upper left/upper right/lower right
1010 1011	User mosaic		
	F1	Maximum size of a mosaic cell	Continuous change
	F2	Aspect ratio of a mosaic cell	Min: Wider Center: Square Max: Taller
1015 1016 1017 1018	Pattern mosaic		
	F1	Size of a mosaic cell	1, 2, 4, 8,...
	F2	Aspect ratio of a mosaic cell	Min: Wider Center: Square Max: Taller
	F4	Aspect ratio of the mosaic area	Min: Wider Max: Taller
1040 1043 1046	Y&C modify The least significant bits of the luminance and color-difference data for the foreground picture are rounded off (bit mask processing).		
	F1	Degree of bit (luminance) masking	1, 2, 3, 4...
1050	Y&C modify Moving the fader lever mixes the processing picture and the background picture.		
	F1	Degree of bit (luminance) masking	1, 2, 3, 4...
	F2	Positive/negative selection	Color positive, color negative, monochrome positive, monochrome negative
1055 1056 1057 1058	Y&C modify		
	F1	Degree of bit (luminance) masking	1, 2, 3, 4...
	F2	Positive/negative selection	Color positive, color negative, monochrome positive, monochrome negative
	F4	Aspect ratio of the area to be modified	Min: Wider Max: Taller
1065	Strobe The number of frames displayed per second is reduced by intermittent field freeze.		
	F1	Frames displayed per second	Min: 30 Max: 0 (still)

(Continued)

Effect control parameters (Continued)

1066 1067	Cinema		
	F1	Frames displayed per second	Min: 30 Max: 0 (still)
	F2	Wide screen degree	Min: Full screen width Max: About 1/3 screen width
	F3	Wide screen position	Min: Center (default) to Max: Top to bottom
1068	Mix strobe Dissolve using intermittent freeze.		
	F1	Frames displayed per second	Min: 30 Max: 0
1070 1071	Drop shadow 1070: Dissolve with the fader lever. 1071: Initialize the parameters with the fader lever.		
	F1	Darkness of shadow	Min to Max: 0 to 100%
	F2	Shadow X-axis	Min to Max: 0 to 128 dots
	[illegible]	Shadow Y-axis	Min to Max: 0 to 64 dots
1075	Cropping Discard, move, enlarge, or reduce the peripheral areas of the picture.		
	F1	Left area setting	Min to Max: Left to right
	F2	Right area setting	Min to Max: Left to right
	F3	Top area setting	Min to Max: Bottom to top
	F4	Bottom area setting	Min to Max: Bottom to top
1102 1103 1106 1107 1108 1109	Picture-in-picture (three-dimensional) 1102, 1106, 1108: Dissolve with the fader lever. 1103, 1107, 1109: Initialize the parameters with the fader lever.		
	F1	X-axis rotation	Min: 0 (default) to Max: −70° to +70°
	F2	Y-axis rotation	Min: 0 (default) to Max: −70° to +70°
	F3	Z-axis rotation	Min: 0 (default) [illegible] Max: −70° to +70°
	F4	Degree of perspective	Min: Small Max: Large
1104 1105	Picture-in-picture (skew) 1104: Dissolve with the fader lever. 1105: Initialize the parameters with the fader lever.		
	F1	Expansion and reduction along X-axis	Min: ×1 (default) to Max: 1/8 to 3 times
	F2	Expansion and reduction along Y-axis	Min: ×1 (default) to Max: 1/8 to 3 times
	F3	Degree [illegible] distortion along X-axis	Min: No distortion (default)
	F4	Degree of distortion along Y-axis	Min: No distortion (default)
1141 1142 1143 1144	Active lighting		
	F1	Lighting width	Min: Narrow Max: Wide
1150 1151	Spotlight		
	F1	Spotlight brightness at maximum fader lever position	
	F2	Aspect ratio of the processing area	Min: Wider Max: Taller

Effect control parameters (Continued)

1155 1156	Center image		
	F1	Softness of the edges of the processing area	Min: Least Max: Greatest
	F4	Aspect ratio of the foreground picture	Min: Wider Max: Taller
1160	Camera viewfinder (compact)		
	F1	Focus area density	Min: Light Max: Heavy
1161	Camera viewfinder (auto-focus single lens reflex)		
	F1	Strobe on, focus mark switch	
	F2	Shutter speed	Min: 1/10 Max: 1/2000
	F3	Aperture	Min: F1.4 Max: F27
1162	Camera viewfinder (manual single lens reflex)		
	F1	Matte screen density	Min: Light Max: Heavy
	F2	Split image	Min: Left Max: Right
1163	Video camera viewfinder		
	F1	Character density	Min: Light Max: Heavy
	F2	Mode selection	Time display, No display, Date display, No display, Set time, Set date, Set counter
	F3	Numerical value input in the mode selected with F2	
1170 1171	Arrow mark, finger		
	F1	Blink speed	Min: Slow Max: Fast
	F2	Blink mode	Off, Blink, Off, Reverse
	F3	Arrow direction	Min to Max: 2 rotations
1210 1211 1212 1213	Stream		
	F1	Stream direction	Min: Vertical to processing picture
1250 1251 1252 1253 1270 1271	Wave modulation[a)]		
	F1	Degree of modification (1) 1250: Modification along Y-axis	Min: 0 (no modification)
	F2	Degree of modification (2) 1250: Modification along X-axis 1251, 1271: Direction of modification 1252, 1253, 1270: Not used	Min: [illegible] (no modification)
	F3	Wave cycle	Min: Long (rough) Max: Short (fine)
	F4	Wave speed	Min: 0 (still with modification) Max: Fast

a) These effects are available only when BKDF-301/301P option board is installed.

(Continued)

Effect control parameters (Continued)

1280 1281 1282 1283	Real paint[a)]		
	F1	Degree of paint effect	Min: No effect Max: Maximum effect
	F2	Frames per second	Min: 30 Max: 0 (still)
1285 1286	Stained glass[a)]		
	F1	Degree of effect	Min: No effect Max: Maximum effect
	F2	Frames per second	Min: 30 Max: 0 (still)
1380 to 1388	Multi-slide[b)]		
	F1	Slide width	Min: Maximum width Max: Minimum width
	F2	Slide direction	Min to Max: 1 rotation
	F3	Z-axis rotation	Min: [illegible] (default) to Max: −1 to +1 rotations
1390 [illegible] 1394	Split slide[a)]		
	F1	Number of windows	Min: 2 Max: 16
1690	Two-dimensional rotation + compression + slide (modified)		
	F1	Amount of curving	Min: 0 (straight line) Max: Maximum curve
	F2	Curve direction	Min [illegible] Max: 1 rotation
	F3	Amount of spiral	Min: 0 (default) Max: −2 to +2 rotations
	F4	Z-axis rotation	Min [illegible] Max: −8 to +8 rotations
1750 1751 1752 1753	Three-dimensional split rotation[a)]		
	F1	Number of windows	Min: 2 Max: 16
2150 2151 2152 2153 2154	Page turn[a)]		
	F1	Direction of turning	Min to Max: 1.5 rotations
	F2	Amount of turning modification	Min: 0 (default) Max: −1 to +1 rotations
2160 to 2167	Split page turn[a)]		
	F1	Number of windows	Min: 2 Max: 16
2250 2251	Picture-in-picture (sphere)[a)]		
	F1	Degree of modification	Min: 0 (flat) Max: Sphere
	F2	Z-axis rotation	Min: [illegible] Max: +1 rotation
	F3	X-axis mapping area	Min: Maximum area Max: Minimum area
	F4	Y-axis mapping area	Min: Maximum area Max: Minimum area

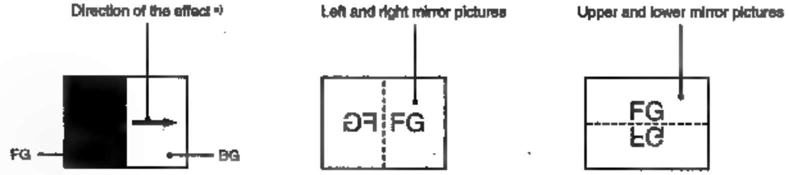
a) These effects are available only when BKDF-301/301P option board is installed.

b) Effects 1381 to 1383 and 1386 to 1388 are available only when BKDF-301/301P option board is installed.

Effect Pattern Image List

This section illustrates the effect patterns of the DFS-300/300P.

How to read the patterns

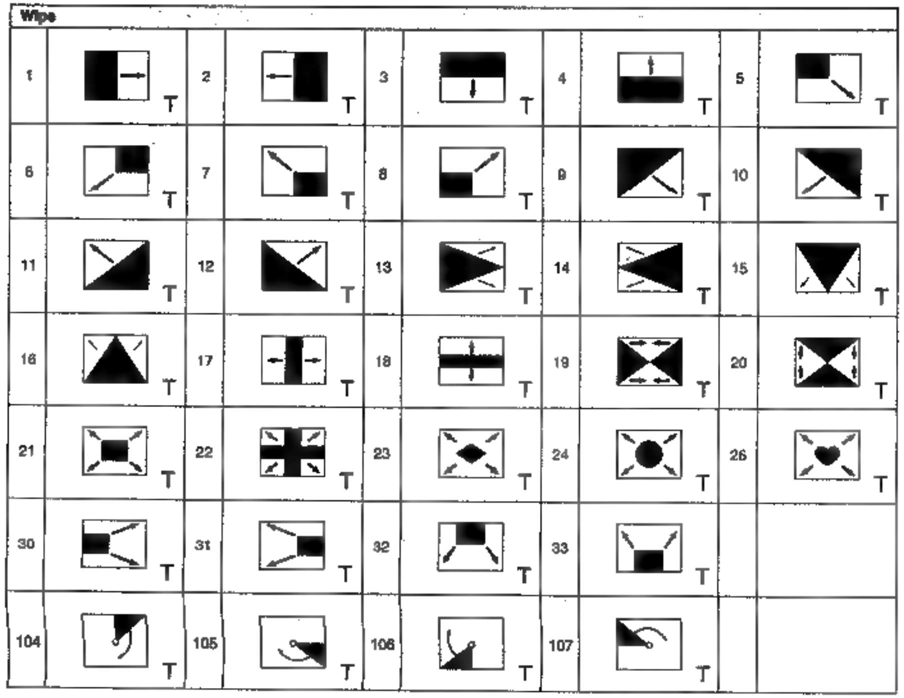

Direction of the effect a)
FG
BG
Left and right mirror pictures
FG
FG
Upper and lower mirror pictures
FG
FG

Abbreviations in the illustrated patterns
FG: Foreground picture
BG: Background picture

T: Transition type
A: Animation type

a) Direction of the effect when executed in normal direction

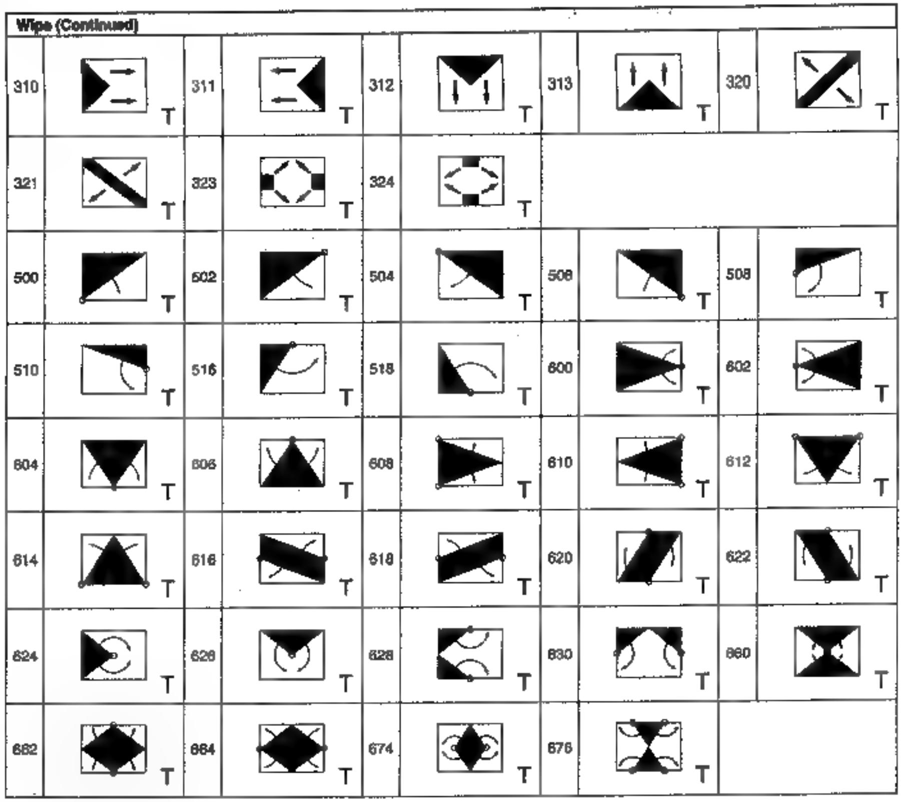
Wipe


1 T
2 T
3 T
4 T
5 T
6 T
7 T
8 T
9 T
10 T
11 T
12 T
13 T
14 T
15 T
16 T
17 T
18 T
19 T
20 T
21 T
22 T
23 T
24 T
26 T
30 T
31 T
32 T
33 T
104 T
105 T
106 T
107 T

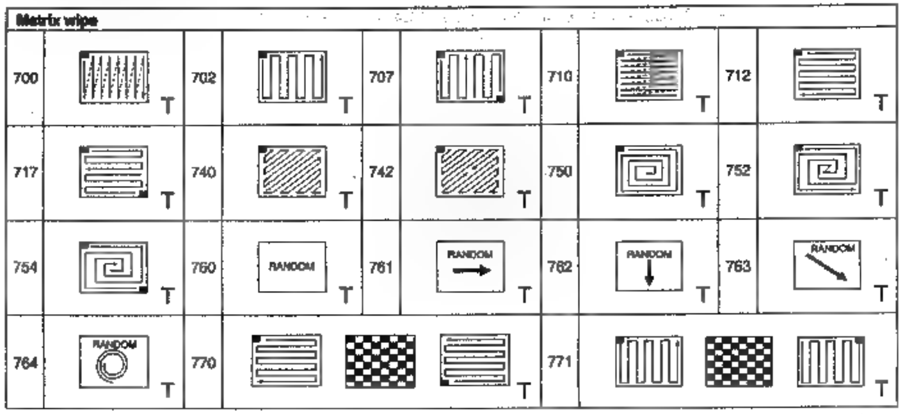
(Continued)

Effect Pattern Image List

Wipe (Continued)

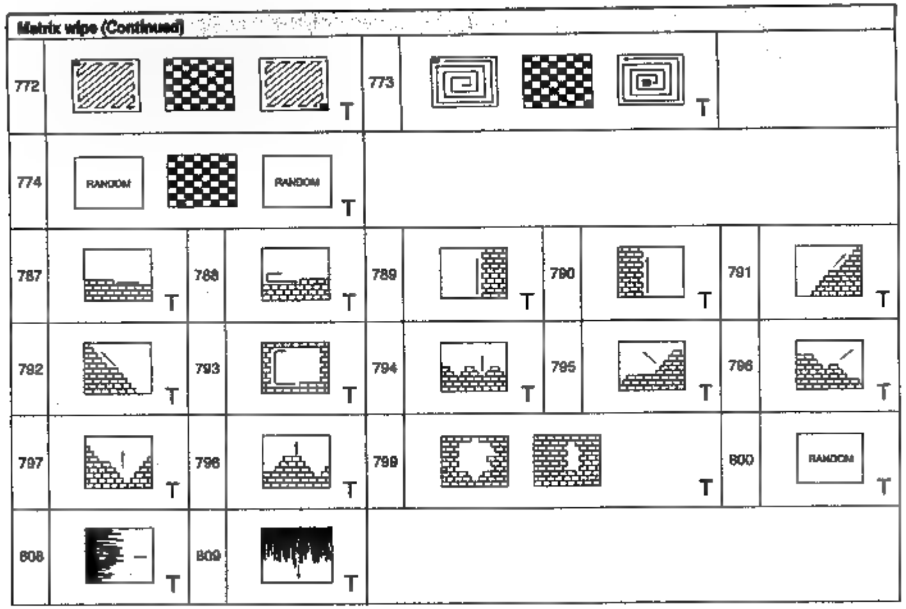

310 T
311 T
312 T
313 T
320 T
321 T
323 T
324 T
500 T
502 T
504 T
506 T
508 T
510 T
516 T
518 T
600 T
602 T
604 T
606 T
608 T
610 T
612 T
614 T
616 T
618 T
620 T
622 T
624 T
626 T
628 T
630 T
660 T
662 T
664 T
674 T
676 T

Matrix wipe

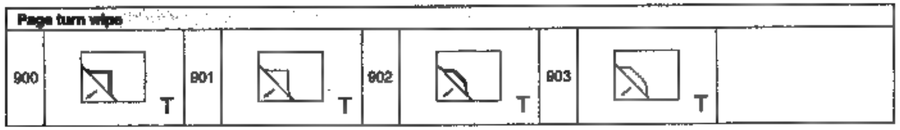

700 T
702 T
707 T
710 T
712 T
717 T
740 T
742 T
750 T
752 T
754 T
760 RANDOM
761 RANDOM T
762 RANDOM T
763 RANDOM T
764 RANDOM T
770 T
771 T

Effect Pattern Image List

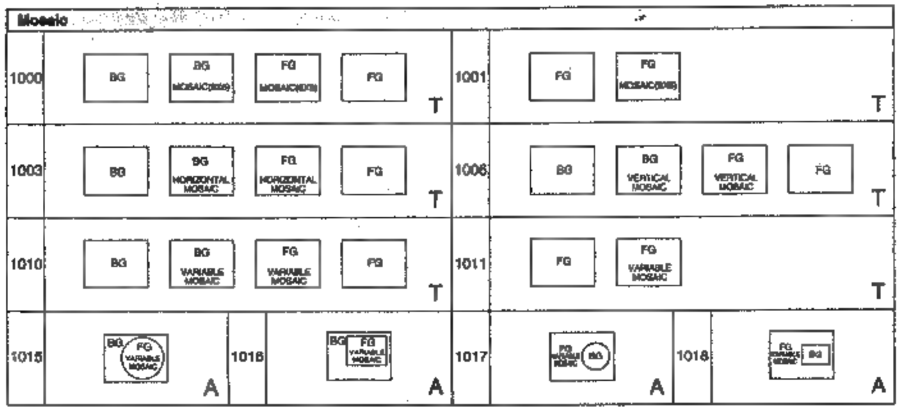
Matrix wipe (Continued)


772
T
773
T
774
RANDOM
RANDOM
T
787
T
788
T
789
T
790
T
791
T
792
T
793
T
794
T
795
T
796
T
797
T
798
T
799
T
800
RANDOM
T
808
T
809
T

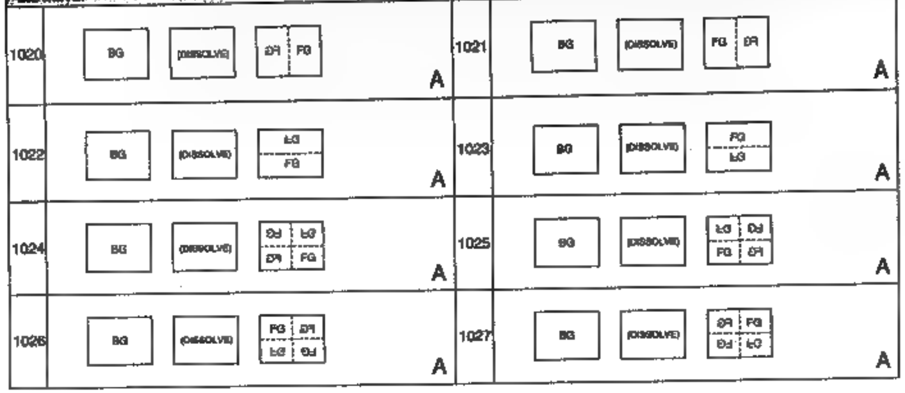
Page turn wipes


900
T
901
T
902
T
903
T

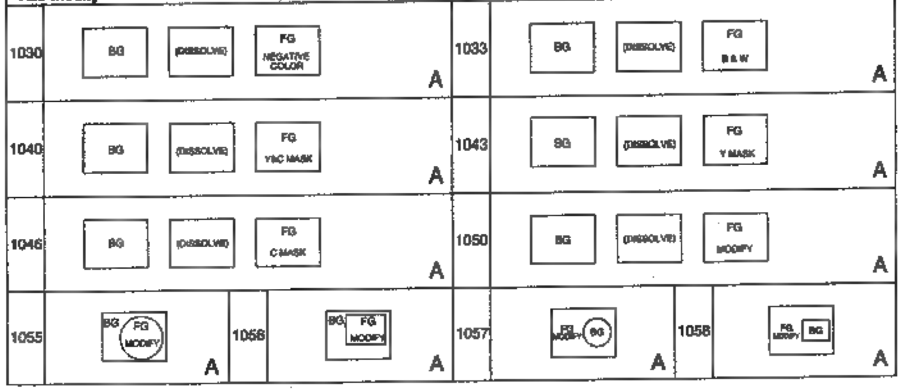
Mosaic


1000
BG
BG MOSAIC
FG MOSAIC
FG
T
1001
FG
FG MOSAIC
T
1003
BG
BG HORIZONTAL MOSAIC
FG HORIZONTAL MOSAIC
FG
T
1006
BG
BG VERTICAL MOSAIC
FG VERTICAL MOSAIC
FG
T
1010
BG
BG VARIABLE MOSAIC
FG VARIABLE MOSAIC
FG
T
1011
FG
FG VARIABLE MOSAIC
T
1015
BG
FG VARIABLE MOSAIC
A
1016
BG
FG VARIABLE MOSAIC
A
1017
FG VARIABLE MOSAIC
BG
A
1018
FG VARIABLE MOSAIC
BG
A

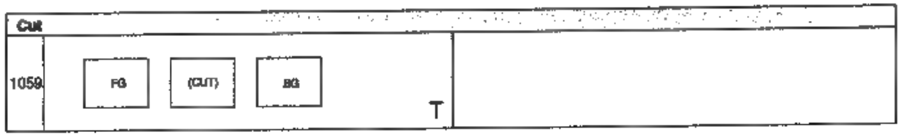
Still mirror


1020
BG
(DISSOLVE)
FG
A
1021
BG
(DISSOLVE)
FG
A
1022
BG
(DISSOLVE)
FG
A
1023
BG
(DISSOLVE)
FG
A
1024
BG
(DISSOLVE)
FG
A
1025
BG
(DISSOLVE)
FG
A
1026
BG
(DISSOLVE)
FG
A
1027
BG
(DISSOLVE)
FG
A

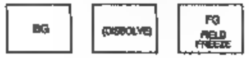
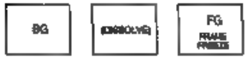
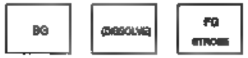
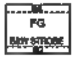
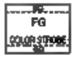
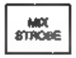
Y&C modify


1030
BG
(DISSOLVE)
FG NEGATIVE COLOR
A
1033
BG
(DISSOLVE)
FG B & W
A
1040
BG
(DISSOLVE)
FG Y&C MASK
A
1043
BG
(DISSOLVE)
FG Y MASK
A
1046
BG
(DISSOLVE)
FG C MASK
A
1050
BG
(DISSOLVE)
FG MODIFY
A
1055
BG
FG MODIFY
A
1056
BG
FG MODIFY
A
1057
FG MODIFY
BG
A
1058
FG MODIFY
BG
A

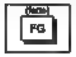
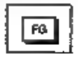
Cut


1059
FG
(CUT)
BG
T

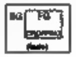
Freeze, strobe, cinema

1060	 BG (DISSOLVE) FG FIELD FREEZE	A
1061	 BG (DISSOLVE) FG FRAME FREEZE	A
1065	 BG (DISSOLVE) FG STROBE	A
1066	 FG B&W STROBE	A
1067	 FG FG COLOR STROBE	A
1068		A

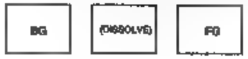
Drop shadow

1070		A
1071		A

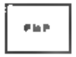
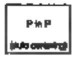
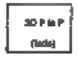
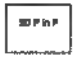
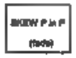
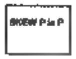
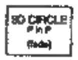
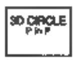
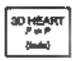
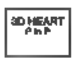
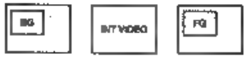
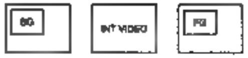
Cropping

1075	 BG FG cropping (fade)	A

Mix

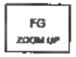
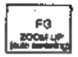
1080	 BG (DISSOLVE) FG	T

Picture-in-picture

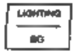
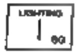
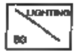
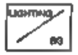
1100		A
1101	 P in P (auto centering)	A
1102 a)	 3D P in P (fade)	A
1103 a)		A
1104	 SKEW P in P (fade)	A
1105		A
1106 a)	 3D CIRCLE P in P (fade)	A
1107 a)	 3D CIRCLE P in P	A
1108 a)	 3D HEART P in P (fade)	A
1109 a)	 3D HEART P in P	A
1115	 BG INT VIDEO FG	T
1116	 BG INT VIDEO FG	T

a) Become three-dimensional effects when BKDF-301/301P option board is installed.

Zoom up

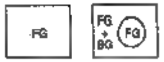
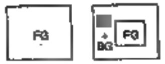
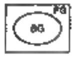
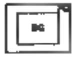
1130		A
1131	 FG ZOOM UP (auto centering)	A

Active lighting

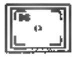
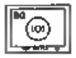
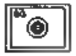
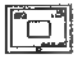
1141	 LIGHTING BG	A
1142	 LIGHTING BG	A
1143	 LIGHTING BG	A
1144	 LIGHTING BG	A

Effect Pattern Image List

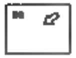
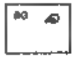
Spotlight, center image

1150		A
1151		A
1155		A
1156		A

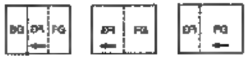
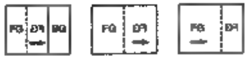
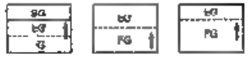
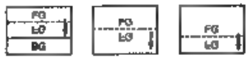
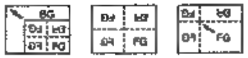
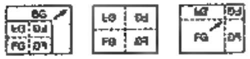
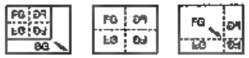
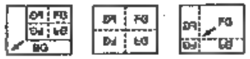
Camera viewfinder, video camera viewfinder

1160		A
1161		A
1162		A
1163		A

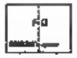
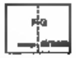
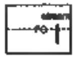
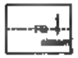
Arrow mark, finger

1170		A
1171		A

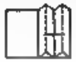
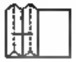
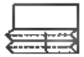
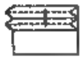
Dynamic mirror

1200		T
1201		T
1202		T
1203		T
1204		T
1205		T
1206		T
1207		T

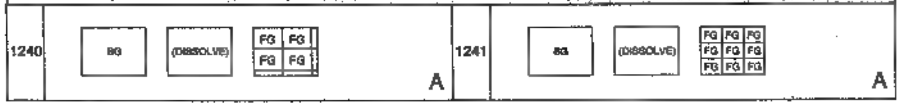
Stream

1210		T
1211		T
1212		T
1213		T

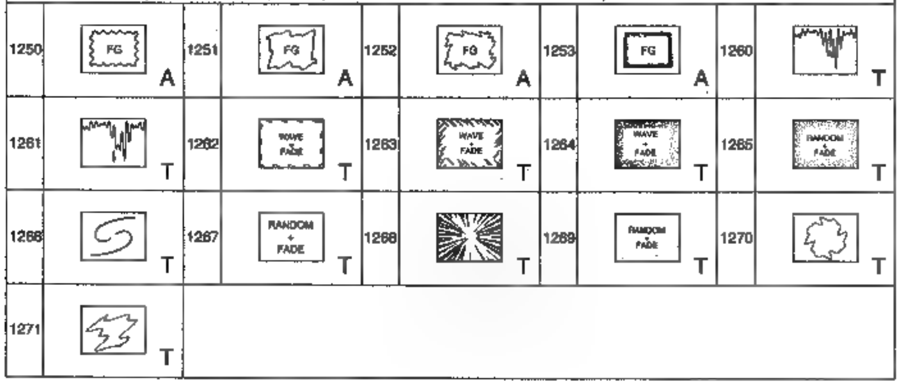
Accordion (BKDF-301/301P option required. Numbers invalid when not installed.)

1230		T
1231		T
1232		T
1233		T

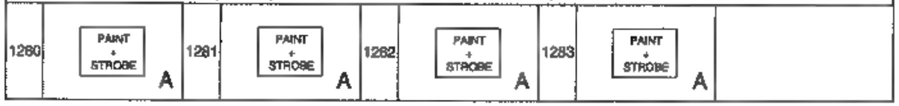
Multi-screen (BKDF-301/301P option required. Numbers invalid when not installed.)


1240
BG
(DISSOLVE)
FG FG
FG FG
A
1241
BG
(DISSOLVE)
FG FG FG
FG FG FG
FG FG FG
A

Wave modulation (BKDF-301/301P option required. Numbers invalid when not installed.)


1250
FG
A
1251
FG
A
1252
FG
A
1253
FG
A
1260
T
1261
T
1262
WAVE + FADE
T
1263
WAVE + FADE
T
1264
WAVE + FADE
T
1265
RANDOM + FADE
T
1266
T
1267
RANDOM + FADE
T
1268
T
1269
RANDOM + FADE
T
1270
T
1271
T

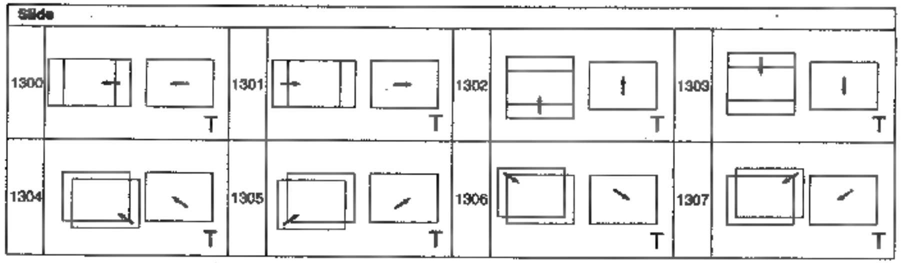
Real paint (BKDF-301/301P option required. Numbers invalid when not installed.)

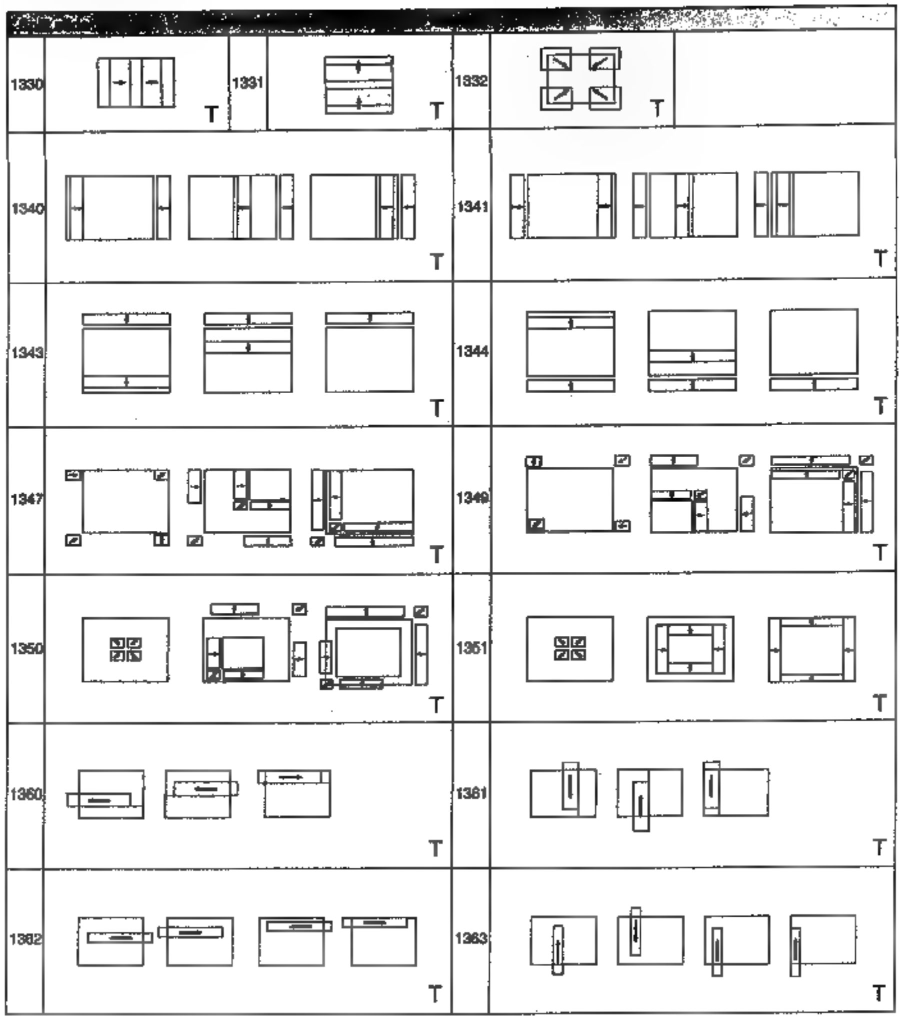

1280
PAINT + STROBE
A
1281
PAINT + STROBE
A
1282
PAINT + STROBE
A
1283
PAINT + STROBE
A

Stained glass (BKDF-301/301P option required. Numbers invalid when not installed.)

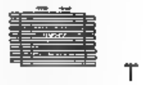
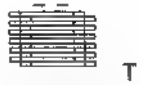
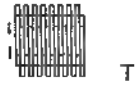
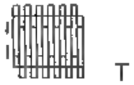
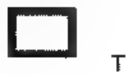
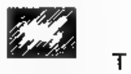
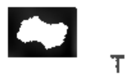
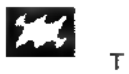
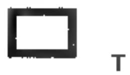
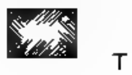
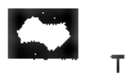
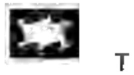
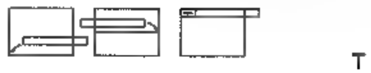
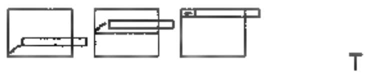
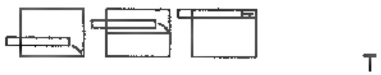
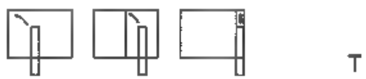
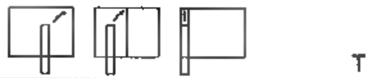
1285
STAINED GLASS + STROBE
A
1286
STAINED GLASS + STROBE
A

Slide

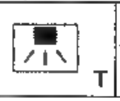
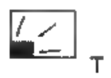
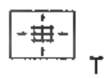
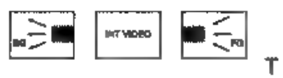
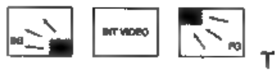
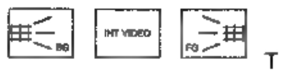

1300
T
1301
T
1302
T
1303
T
1304
T
1305
T
1306
T
1307
T

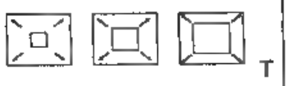
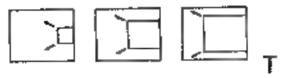
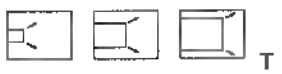
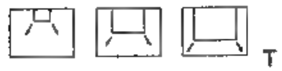
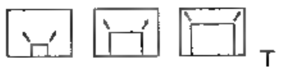
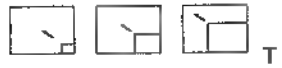
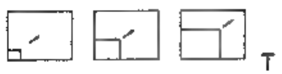
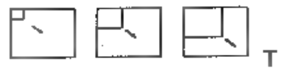
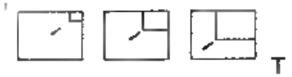
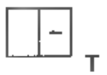
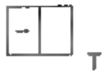
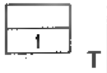
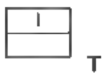
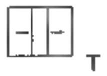
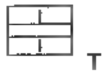
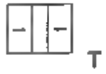
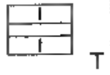
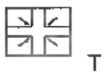
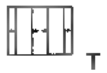
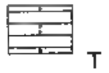

1330
T
1331
T
1332
T
1340
T
1341
T
1343
T
1344
T
1347
T
1349
T
1350
T
1351
T
1360
T
1361
T
1362
T
1363
T

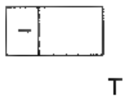
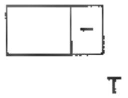
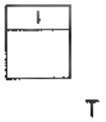
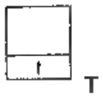
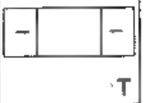
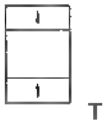
Effect Pattern Image List

Split slide (Continued)							
1370		1371		1372		1373	
1380		1381 a)		1382 a)		1383 a)	
1385		1386 a)		1387 a)		1388 a)	
1390				1391			
1392				1393			
1394							

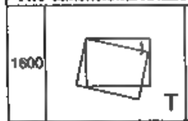
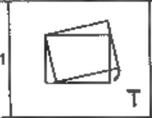
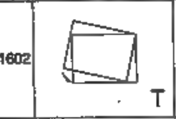
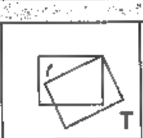
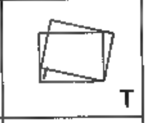
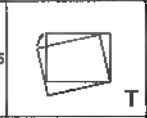
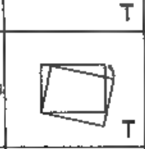
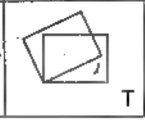
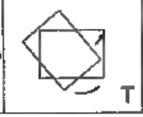
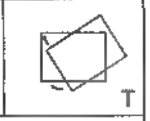
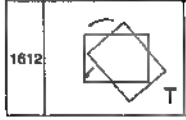
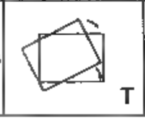
a) Effects available only when BKDF-301/301P option board is installed. Numbers invalid when not installed.

Multi-split (BKDF-301/301P option required. Numbers invalid when not installed.)							
1403		1418		1420		1432	
1447		1451					

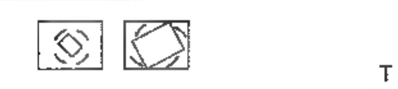
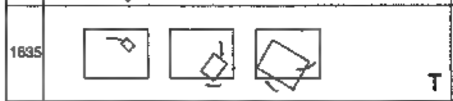
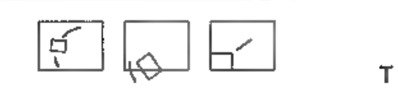
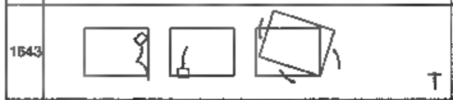
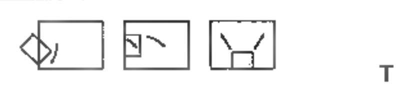
Compression									
1500		1501							
1502		1503							
1504		1505							
1506		1507							
1508		1510		1511		1512			
1513		1514		1515		1520		1521	
1522		1523		1524					

Expand									
1530		1531		1532		1533		1534	
1535									

Two-dimensional rotation

1600		1601		1602		1603		1604	
1605		1606		1607		1610		1611	
1612		1613							

Two-dimensional rotation + Compression + Slide

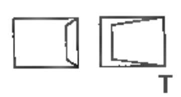
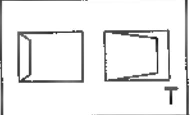
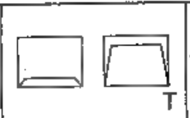
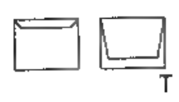
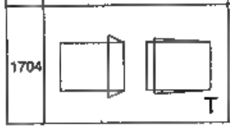
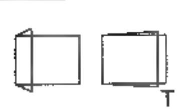
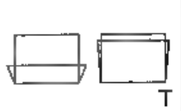
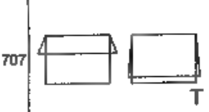
1620		1630	
1635		1640	
1643		1644	

Two-dimensional rotation + Compression + Slide (modified)

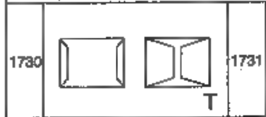
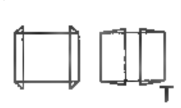
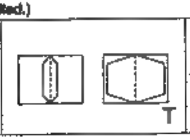
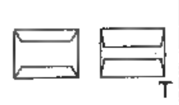
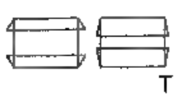
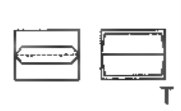
1690	

Effect Pattern Image List

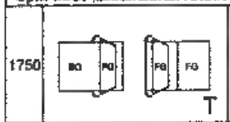
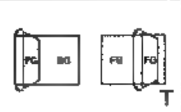
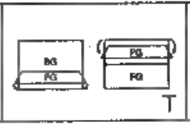
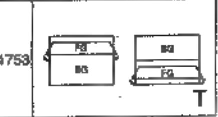
Three-dimensional rotation (BKDF-301/301P option required. Numbers invalid when not installed.)

1700		1701		1702		1703	
1704		1705		1706		1707	

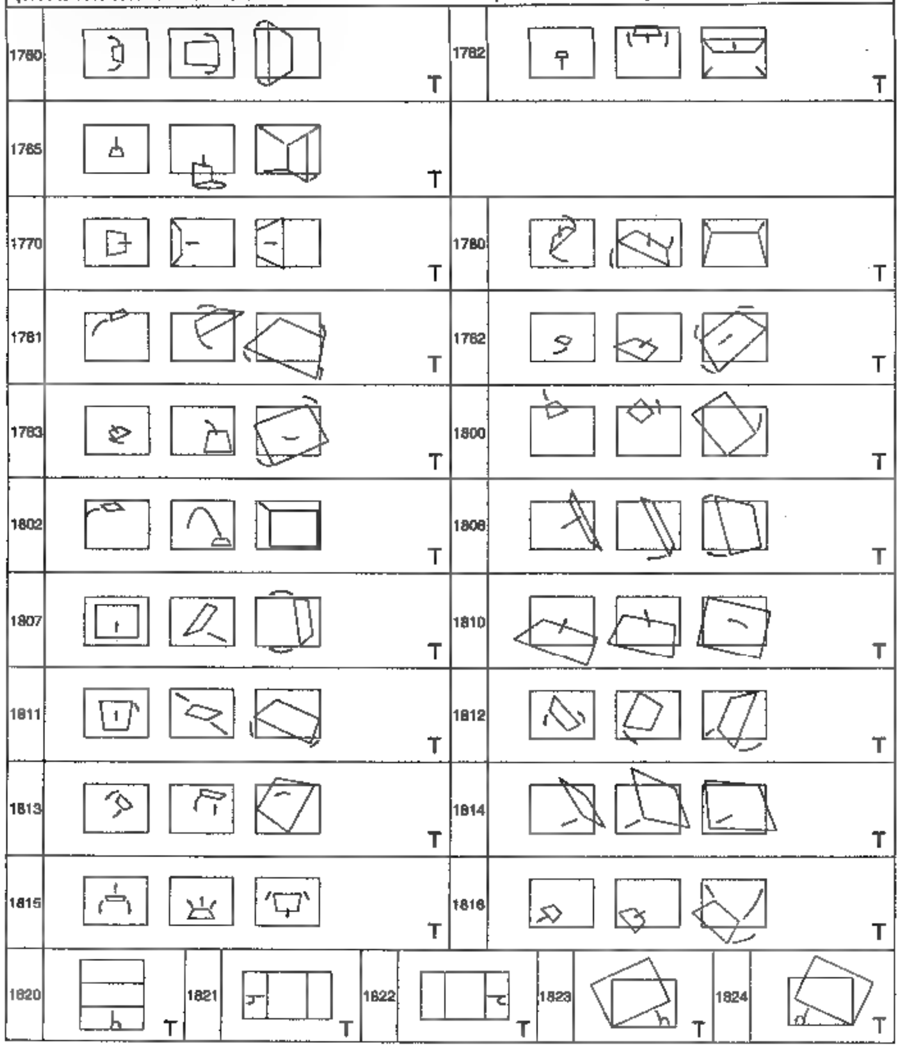
Door (BKDF-301/301P option required. Numbers invalid when not installed.)

1730		1731		1732		1740	
1741		1742					

Split three-dimensional rotation (BKDF-301/301P option required. Numbers invalid when not installed.)

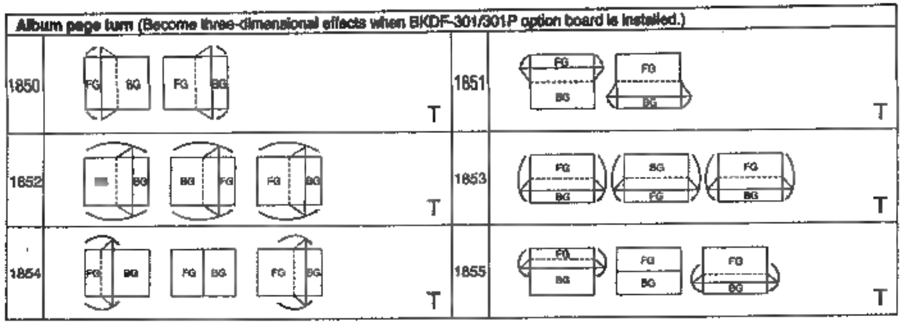
1750		1751		1752		1753	

Three-dimensional rotation + Compression + Slide
(1760 to 1816 become three-dimensional effects when BKDF-301/301P option board is installed.)

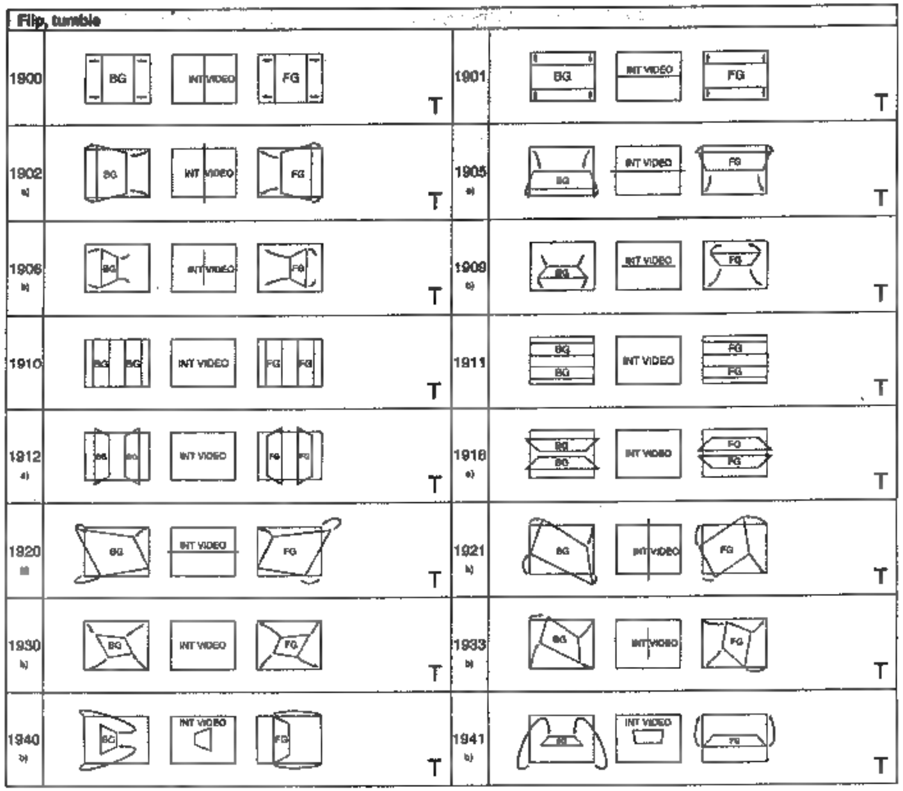

1760
T
1762
T
1765
T
1770
T
1780
T
1781
T
1782
T
1783
T
1800
T
1802
T
1806
T
1807
T
1810
T
1811
T
1812
T
1813
T
1814
T
1815
T
1816
T
1820
T
1821
T
1822
T
1823
T
1824
T

Effect Pattern Image List

Album page turn (Become three-dimensional effects when BKDF-301/301P option board is installed.)


1850
FG
BG
T
1851
FG
BG
T
1852
BG
FG
T
1853
FG
BG
T
1854
FG
BG
T
1855
FG
BG
T

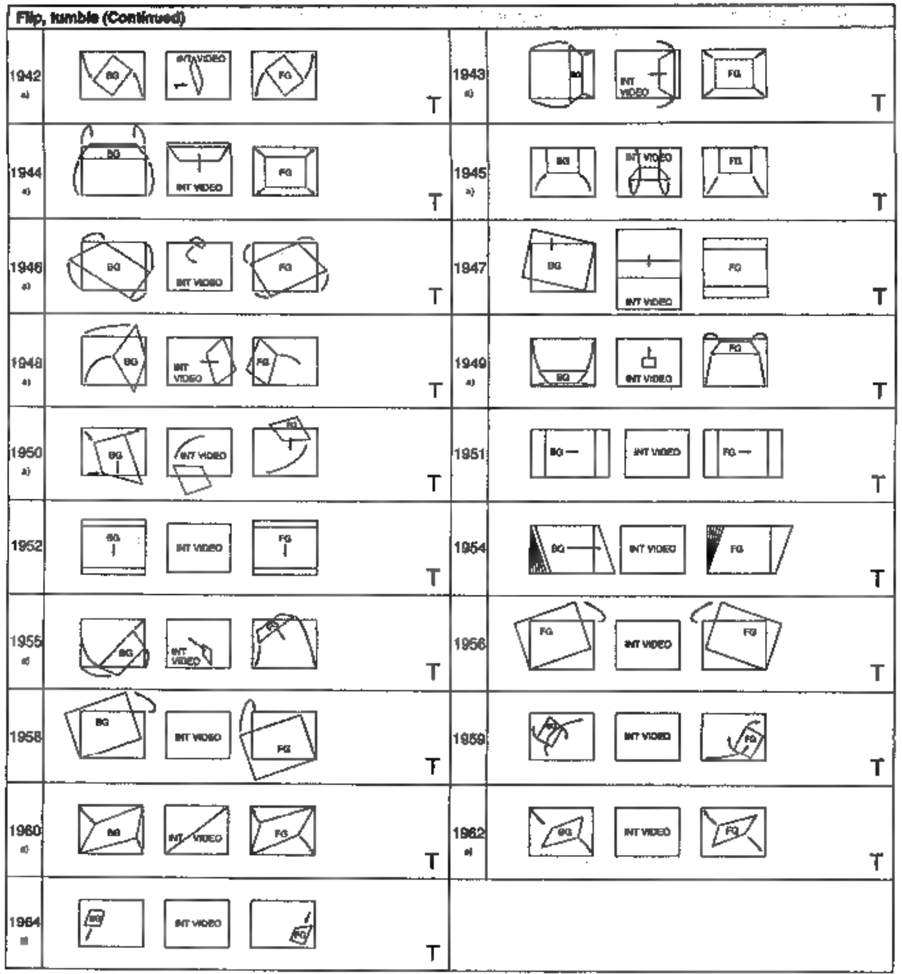
Flip, tumble


1900
BG
INT VIDEO
FG
T
1901
BG
INT VIDEO
FG
T
1902
a)
BG
INT VIDEO
FG
T
1905
a)
BG
INT VIDEO
FG
T
1906
b)
BG
INT VIDEO
FG
T
1909
b)
BG
INT VIDEO
FG
T
1910
BG
INT VIDEO
FG
T
1911
BG
INT VIDEO
FG
T
1912
a)
BG
INT VIDEO
FG
T
1916
a)
BG
INT VIDEO
FG
T
1920
a)
BG
INT VIDEO
FG
T
1921
b)
BG
INT VIDEO
FG
T
1930
b)
BG
INT VIDEO
FG
T
1933
b)
BG
INT VIDEO
FG
T
1940
b)
BG
INT VIDEO
FG
T
1941
b)
BG
INT VIDEO
FG
T

a) Effects available only when BKDF-301/301P option board is installed. Numbers invalid when not installed.
b) Become three-dimensional effects when BKDF-301/301P option board is installed.

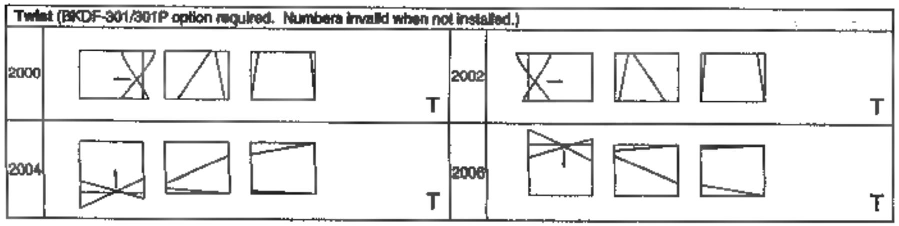
Effect Pattern Image List

Flip, tumble (Continued)

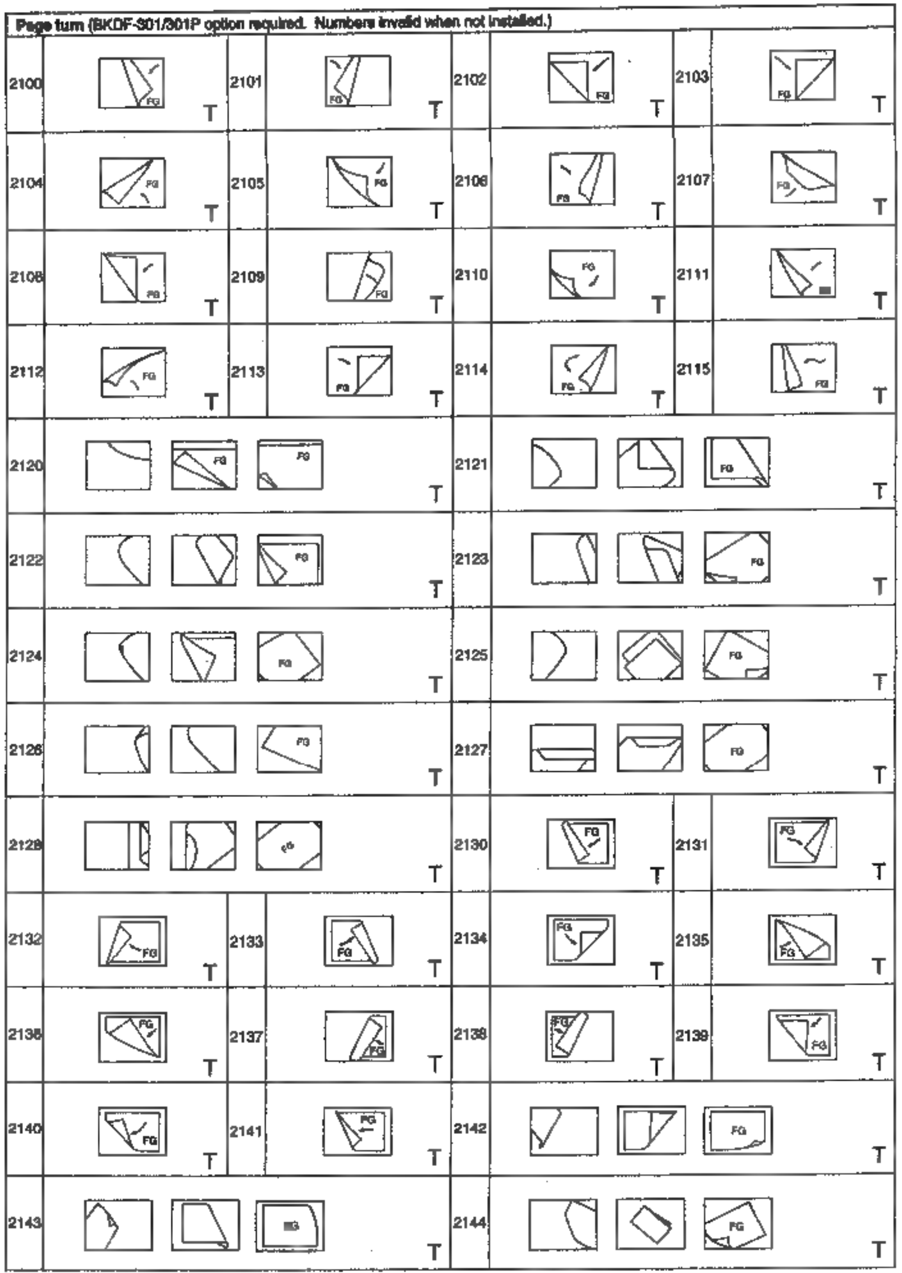

1942 a)
1943 a)
1944 a)
1945 a)
1946 a)
1947
1948 a)
1949 a)
1950 a)
1951
1952
1954
1955 a)
1956
1958
1959
1960 a)
1962 a)
1964 a)
BG
INT VIDEO
FG
T

a) Become three-dimensional effects when BKDF-301/301P option board is installed.

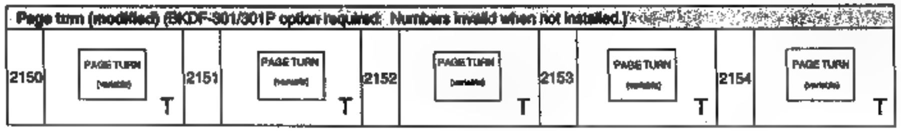
Twist (BKDF-301/301P option required. Numbers invalid when not installed.)


2000
2002
2004
2006
T

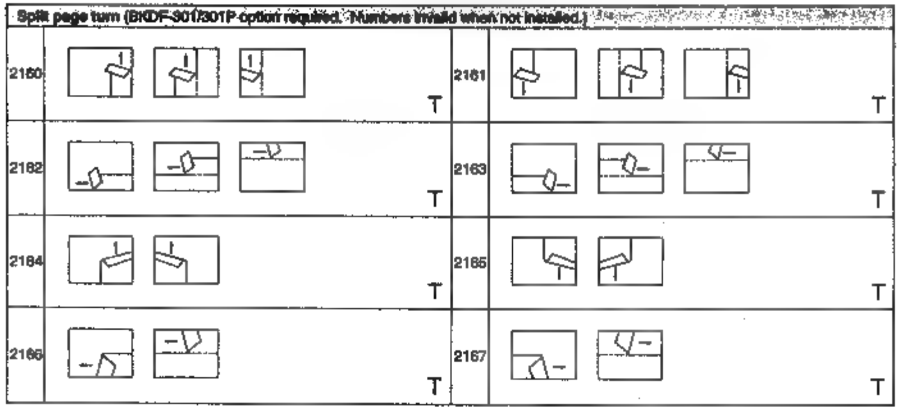
Page turn (BKDF-301/301P option required. Numbers invalid when not installed.)


2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2120
2121
2122
2123
2124
2125
2126
2127
2128
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
BG
FG
T

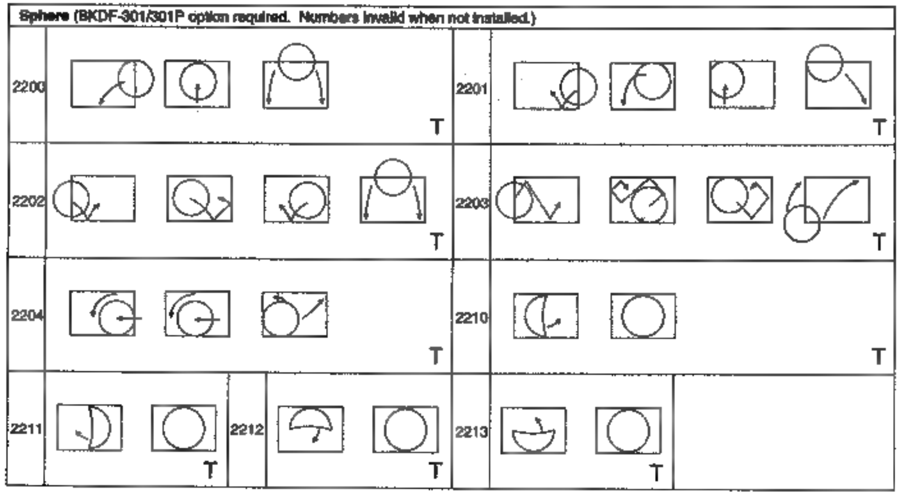
Page turn (modified) (BKDF-301/301P option required. Numbers invalid when not installed.)


2150
PAGE TURN
T
2151
PAGE TURN
T
2152
PAGE TURN
T
2153
PAGE TURN
T
2154
PAGE TURN
T

Split page turn (BKDF-301/301P option required. Numbers invalid when not installed.)


2160
T
2161
T
2162
T
2163
T
2164
T
2165
T
2166
T
2167
T

Sphere (BKDF-301/301P option required. Numbers invalid when not installed.)


2200
T
2201
T
2202
T
2203
T
2204
T
2210
T
2211
T
2212
T
2213
T

Picture-in-picture sphere (BKDF-301/301P option required. Numbers invalid when not installed.)

2250
A
2251
A

Additional Functions

This section shows how to use the effect pattern search function, explains the DFS-300/300P Setup Menu, and lists control panel button combinations.

Effect pattern search function

You can use this function to search for effect patterns by group name.

To search for an effect pattern by group name

1 In the keypad section, press the DIRECT PATTERN button to select direct pattern select mode, or press the SET button to select pattern number entry mode.

2 Press the keypad section SHIFT button.

The abbreviated group name of the currently selected pattern appears in the PATTERN NUMBER display window.

3 Use the keypad buttons to move up and down an alphabetical list of group names.

- To select the next highest group, press the UP button while holding the SHIFT button down. Each time you press the UP button, the first pattern in the next highest group is selected.
- To select the next lowest group, press the DOWN button while holding the SHIFT button down. Each time you press the DOWN button, the first pattern in the next lowest group is selected.
- To select the highest group (ACCORDION, No. 1230), press the P IN P/RST button while holding the SHIFT button down.
- To select the MARKER group (No. 1170), press the ENTER button while holding the SHIFT button down.

4 To select a pattern within a group, press the UP and DOWN buttons without pressing the SHIFT button.

Effect pattern group names (Alphabetical order)

Group Name	Pattern Nos.	Abbreviation	Group Name	Pattern Nos.	Abbreviation
ACCORDION [a]	1230 to 1233(4)	A C d n	PAGE TURN [a]	2100 to 2154(45)	P A G E
ACTIVE LIGHT	1141 to 1144(4)	A.L G 7	PAGE TURN WIPE	900 to 903(4)	P.W I P
ALBUM	1850 to 1855(6)	A L b Π	P in P	1100 to 1116(12)	P i n P
BOUND 2D	1820 to 1824(5)	b 0 U d	REAL PAINT [a]	1280 to 1283(4)	r.P n 7
CENTER IMAGE	1155, 1156(2)	C n 7 r	ROTARY WIPE	104 to 107, 500 to 676(33)	r.W I P
CINEMA	1066, 1067(2)	C I n E	ROTATION 2D	1600 to 1690(19)	r o t.2
COMPRESSION	1500 to 1524(20)	C 0 Π P	ROTATION 3D [b]	1700 to 1707, 1750 to 1816(31)	r o t.3
CROP	1075(1)	C r 0 P	SLIDE	1300 to 1307(8)	5 L I d
CUT	1059(1)	C U 7	SPHERE [a]	2200 to 2251(11)	5 P H r
DOOR [a]	1730 to 1742(6)	d 0 0 r	SPLIT [a]	1330 to 1451(36)	5 P L 7
DROP SHADOW	1070, 1071(2)	d.5 d W	SPLIT PAGE TURN [a]	2160 to 2167(8)	5.P 7 n
DYNAMIC MIRROR	1200 to 1207(8)	d.Π I r	SPOT LIGHT	1150, 1151(2)	5 P 0 7
EXPAND	1530 to 1535(6)	E P n d	STAINED GLASS [a]	1265, 1266(2)	5 7 n d
FINDER	1160 to 1163(4)	F I n d	STREAM	1210 to 1213(4)	5 7 r Π
FLIP [b]	1900 to 1964(35)	F L I P	STROBE	1068, 1069(2)	5 7 r b
FREEZE	1060 to 1061(2)	F r E 2	TWIST [a]	2000 to 2006(4)	7 W 5 7
MARKER	1170, 1171(2)	Π A r K	USER PROGRAM [a]	9000 to 9309(40)	U.P G Π
MATRIX WIPE	700 to 809(37)	Π.W I P	WAVE MODULATION [a]	1250 to 1253, 1262 to 1269(12)	W A u E
MELT DOWN [a]	1260 to 1261(2)	Π E L 7	WAVY WIPE [a]	1270, 1271(2)	W.W I P
MIRROR	1020 to 1027(8)	Π I r r	WIPE	1 to 33, 310 to 324(37)	W I P E
MIX	1080(1)	Π I X	Y/C MODIFICATION	1030 to 1058(10)	4.C.Π d
MOSAIC	1000 to 1018(10)	Π 5 I C	ZOOM UP	1130 to 1131(2)	2 0 0 Π
MULTI SCREEN [a]	1240 to 1241(2)	Π.5 C r			

a)Requires the BKDF-301/301P board. When not installed, the group [illegible] excluded from the search.

b)Some effects require the BKDF-301/301P board. When not installed, pattern number 1750 is called up [illegible] the ROTATION 3D group.

Setup Menu

You can use the Setup Menu to make the following settings.

- Volume of warning tones
- Background or foreground freeze
- Cropping (effective picture area)
- Control panel saver timing

To change Setup Menu settings

1. In the keypad section, press the SET button while holding down the SHIFT button.

   The DFS-300/300P enters setup mode. The number of the currently selected Setup Menu item appears in the TRANS RATE display window, and an abbreviation of the item name appears in the PATTERN NUMBER display window.

2. Press the UP or DOWN button to select a Setup Menu item (SETUP 01 to SETUP 04).

3. Refer to the following table and make changes as required.

4. Press the SET button again while holding down the SHIFT button.

   The DFS-300/300P leaves setup mode.

Setup Menu items

Number display	Abbreviation	Item	Operation	Factory default
5.0 1 (SETUP 01)	b 2 E r	**Warning tone volume** Set the volume of the warning tone that sounds to alert you to an incorrect control panel operation.	The warning tone sounds intermittently. Adjust the volume using one of the following methods. There are 8 volume stages, numbered from 0 to 7 (0 is silent). The currently selected stage is shown in the SNAPSHOT display window. • Rotate one of the parameter adjustment knobs to adjust the volume. • In the SNAPSHOT section, press the RECALL button to increase the volume or the LEARN button [illegible] decrease it. • To restore the factory default setting (4), press the [illegible] IN P/RST button [illegible] the keypad section.	4

Setup Menu items (Continued)

Number display	Abbreviation	Item	Operation	Factory default
S.0 2 (SETUP 02)	F r E 2	**Freeze picture selection** Normally the object of freeze effects is the background picture. But for animation effects only you can choose [illegible] freeze the foreground picture instead. (See page 4-31.)	Select the foreground or background picture as follows. • To select the foreground picture, press one of the FOREGROUND bus buttons in the crosspoint bus section. All five of the FOREGROUND bus buttons light, and "1" appears in the SNAPSHOT display window. **Note** If you select the foreground picture, you will not be able to use animation effects in A-roll editing. • To select the background picture, press one of the BACKGROUND bus buttons. All five of the BACKGROUND bus buttons light, and "0" appears in the SNAPSHOT display window.	Background picture (0)
S.0 3 (SETUP 03)	C r O P	**Cropping** Set the size of the cropping area (the portion of the picture that is visible on the screen).	Set the cropping area or select no cropping as follows. • To set the cropping area, rotate the parameter adjustment knobs [illegible] the EFFECTS CONTROL section. Rotate the knobs to adjust, from left, the left, right, top, or bottom borders of the cropping area. When you set the cropping area, "1" appears in the SNAPSHOT display window. **Note** When setting a cropping area, you can use the following controls. —The fader lever —The BORDER buttons in the EDGE section —The LOCATION section • To select the default value (no cropping), press the P IN P/RST button in the keypad section, turning it on. The number "0" appears in the SNAPSHOT display window.	No cropping (0).
S.0 4 (SETUP 04)	S A b r	**Control panel saver timing** The control panel saver is a function that turns off control panel button lights and takes other steps to conserve energy when the control panel is not operated for a preset number of minutes. This function allows you to set the number of minutes until the saver function is activated.	• To increase the number of minutes until the saver is activated, press the RECALL button. To decrease the number, press the LEARN button. The SNAPSHOT display window displays the number of minutes as 0 (OFF), 5, 10, 30 or 60. While the saver is activated, all display windows and key lights are turned off except for the PATTERN NUMBER display window, which displays the messages "DFS-300 Sony Corporation 1994" and "Hit any key". • To deactivate the saver, press any key or rotate any of the knobs on the control panel. The saver is also deactivated when a command is received from an external editing control unit.	0 (OFF)

Additional Functions

Functions selected by control panel button combinations

The table below shows the functions selected when you hold down two or more control panel buttons at the same time. SHIFT button combinations are shown on the following page.

Control panel button combinations

(Buttons' names are outlined in ☐, and "+" indicates holding down two or more buttons [illegible] the same time.)

Key combination	Function
[P IN P/RST] + [DOWN] + power on	Initialize user data (direct pattern assignments, user program data, snapshot data) and control panel settings [illegible] the factory defaults.
[P IN P/RST] + [DOWN] + [EDITOR/GPI]	Initialize control panel settings to the factory defaults.
[P IN P/RST] + [DOWN] + [DIRECT PATTERN]	Initialize direct pattern assignments to the factory defaults.
[P IN P/RST] + [DOWN] + [LEARN]	Initialize the contents of snapshot memory to the factory defaults.
[P IN P/RST] + [DOWN] + [EDIT]	Delete all user program effects. (Valid only in user program edit mode.)
Numeric button ([0] to [9]) + [ENTER]	Assign key frame data to the numeric button, or recall the key frame data. (Valid only in user program edit mode.)
[P IN P/RST] + [DEL]	Delete a specific user program effect. (Valid only [illegible] user program edit mode.)
[DIRECT PATTERN] + Numeric button ([0] to [9])	Assign a direct pattern to the numeric button.
BACKGROUND bus or FOREGROUND bus button + [UP] or [DOWN]	When the COL BKGD indicator in the MATTES section is lit, choose from among 31 emboss patterns or a plain color background for INT VIDEO color backgrounds.
BACKGROUND bus or FOREGROUND bus button + [P IN P/RST]	When the COL BKGD indicator in the MATTES section is lit, choose a plain color background for INT VIDEO color backgrounds.
[1] + [9] + [AUTO TRANS]	Begin a demonstration of the special effects built into DFS-300/300P. To stop the demonstration, press the AUTO TRANS button.
[3] + [7] + [AUTO TRANS]	Begin a demonstration of the special effects in snapshot memory. To stop the demonstration, press the AUTO TRANS button.
[COL CRRCT] + [P IN P/RST]	Initialize the color correction parameters set in the EFFECTS CONTROL section (HUE, OFFSET, C GAIN).
[CRK] + [P IN P/RST]	Initialize the chroma key parameters set in the EFFECTS CONTROL section (CLIP, HUE).

Functions selected by SHIFT button combinations

The table below shows the functions selected when using one or more control panel buttons together with the SHIFT button.

SHIFT button combinations

(Buttons' names are outlined in ☐, and "+" indicates pressing one or more buttons while holding down the SHIFT button.)

Key combination	Function
SHIFT (held down alone)	• Display the current pattern group name in the PATTERN NUMBER display window. • Show whether control by GPI signals is enabled (EDITOR/GPI button lights) or disabled (EDITOR/GPI button does not light).
SHIFT + EDITOR/GPI	Enable or disable control by GPI signals.
SHIFT + TYPE/POSITION	Change the position of downstream key borders.
SHIFT + CLIP/GAIN knob	Change the video gain of the downstream key.
SHIFT + DSK MIX/DSK CUT	Cut the the downstream key in or out instantly.
SHIFT + (X)(Y)/(Z) joystick	Change the size (Z-axis position) of an effect.
SHIFT + UP or DOWN	Search for an effect pattern by alphabetically ordered group name.
SHIFT + P IN P/RST	Search to the first effect pattern group (ACCORDION).
SHIFT + ENTER	Search [illegible] effect pattern 1170 (MARKER).
SHIFT + SET	Enter setup mode. To leave setup mode, press SHIFT + SET again.
SHIFT + FIELD or FRAME	Select the background picture freeze mode before executing an effect. You can also use the Setup Menu to freeze the foreground picture in animation effects. *(See page 4-32)*
SHIFT + DIRECT PATTERN	Display a message in the PATTERN NUMBER display window that tells whether or not the currently selected pattern is three-dimensional. If the BKDF-301/301P board is not installed, the message is always "no".
SHIFT + DIRECT PATTERN + LOCATION	When the BKDF-301/301P board is installed, process a three-dimensional effect as a two-dimensional one.
SHIFT + FOREGROUND bus button 1	Lock the control panel so that it does not respond to button presses or rotation of the knobs. To unlock the control panel, press SHIFT + FOREGROUND bus button 1 again.
SHIFT + BACKGROUND bus button 1	Forcibly activate the control panel saver.

Specifications

General

Signal system	DFS-300: NTSC DFS-300P: PAL
Power requirements	DFS-300: 120 V AC, 50/60 Hz DFS-300P: 220/240 V AC, 50/60 Hz
Operating voltage	DFS-300: 90 to 132 V AC, 48 to 63 Hz DFS-300P: 180 to 264 V AC, 48 to 63 Hz
Power consumption	80 W
Operating temperature	0°C to 40°C (32°F to 104°F)
Dimensions (w/h/d; excluding projections)	Processor unit: 424 × 132 × 450 mm (16 3/4 × 5 1/4 × 17 3/4 inches) Control panel: 424 × 69 × 287 mm (16 3/4 × 2 3/4 × 11 3/8 inches)
Mass	Processor unit: 13.0 kg (28 lb 10 oz) Control panel: 2.3 kg (5 lb 1 oz)

Input signals

VIDEO INPUTS 1 to 3	
COMPOSITE	BNC type (× 1 each) Video: 1.0 Vp-p, 75 ohms Sync: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL) Burst: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL)
Y/C	4-pin (× 1 each) Y: 1.0 Vp-p, 75 ohms C: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL), 75 ohms, burst Sync: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL)
COMPONENT (Betacam)	12-pin (× 1 each) Y: 1.0 Vp-p, 75 ohms R–Y/B–Y: 0.7 Vp-p (NTSC) or 0.525 Vp-p (PAL), 75 ohms, 100/7.5/77/7.5 (NTSC) or 100/0/75/0 (PAL) color bar
VIDEO INPUTS 4	BNC type (× 1 each)
G/Y	Y: 1.0 Vp-p, 75 ohms G: 0.7 Vp-p, 75 ohms
R/R–Y	R–Y: 0.7 Vp-p or (NTSC) or 0.525 Vp-p (PAL), 75 ohms, 100/7.5/77/7.5 (NTSC) or 100/0/75/0 (PAL) color bar R: 0.7 Vp-p, 75 ohms
B/B–Y	B–Y: 0.7 Vp-p (NTSC) or 0.525 Vp-p (PAL), 75 ohms, 100/7.5/77/7.5 (NTSC) or 100/0/75/0 (PAL) color bar B: 0.7 Vp-p, 75 ohms
SYNC	0.286 to 4.0 Vp-p (NTSC) or 0.3 to 4.0 Vp-p (PAL), 75 ohms
DSK VIDEO IN	
COMPOSITE/G/Y	BNC type (× 2, loop through) COMPOSITE Video: 1.0 Vp-p, 75 ohms Sync: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL) Burst: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL) Y: 1.0 Vp-p, 75 ohms G: 0.7 Vp-p, 75 ohms
B/B–Y	BNC type (× 1) B–Y: 0.7 Vp-p (NTSC) or 0.525 Vp-p (PAL), 75 ohms, 100/7.5/77/7.5 (NTSC) or 100/0/75/0 (PAL) color bar B: 0.7 Vp-p, 75 ohms

R/R–Y	BNC type (× 1) R–Y: 0.7 Vp-p (NTSC) or 0.525 Vp-p (PAL), 75 ohms, 100/7.5/77/7.5 (NTSC) or 100/0/75/0 (PAL) color bar R: 0.7 Vp-p, 75 ohms
EXT KEY IN	BNC type (× 1), 1.0 Vp-p, 75 ohms
DSK KEY IN	BNC type (× 2, loop through), 1.0 Vp-p, 75 ohms
GEN LOCK IN	BNC type (× 2, loop through) Video: 1.0 Vp-p, 75 ohms Sync: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL) Burst: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL)

Output signals

PGM OUT 1, 2	
COMPOSITE	BNC type (× 1 each) Video: 1.0 Vp-p, 75 ohms Sync: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL) Burst: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL)
Y/C	4-pin (× 1 each) Y: 1.0 Vp-p, 75 ohms C: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL), 75 ohms, burst Sync: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL)
COMPONENT (Betacam)	12-pin (× 1 each) Y: 1.0 Vp-p, 75 ohms R–Y/B–Y: 0.7 Vp-p (NTSC) or 0.525 Vp-p (PAL), 75 ohms, 100/7.5/77/7.5 (NTSC) or 100/0/75/0 (PAL) color bar
KEY OUT	BNC type (× 1), 1.0 Vp-p, 75 ohms, without sync
BLACK BURST OUT 1 to 3	BNC type (× 3) Sync: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL) Burst: 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL)

Control signals

EDITOR	9-pin remote (RS-422A)
T1/CUE, T2	BNC type (× 1 each), TTL level
CONTROL PANEL	25-pin remote (RS-422A)

Electrical characteristics

Sampling rate	Y: 910 fH (fH = 15.734 kHz) (NTSC) or 908 fH (fH = 15.625 kHz) (PAL) R–Y/B–Y: 1/4 × 910 [illegible] (NTSC) or 1/4 × 908 [illegible] (PAL)
Quantizing	Y/R–Y/B–Y: [illegible] bits
Linearity (composite output)	
Differential phase	Less than 2.5°(composite input) Less than 1.0° (Y/C, component input)
Differential gain	Less than 3.5% (composite input) Less than 2.0% (Y/C, component input)
Crosstalk	Less than –50 dB
Frequency response	0 to 5 MHz $^{+0.5}_{-1}$dB
S/N	More than 51 dB (composite input) More than 55 dB (component input, component output)
Y/C delay	Less than 20 ns (component input, component output) Less than 50 ns (composite input)

Specifications

Supplied accessories

AC power cord (1)
25-pin control cable, 10 [illegible] (1)
Button labels (1 set)
Rack mount rail fixing screws (M4 × 8) (8)
BKDF-504/504P installation screws (M3 × 6) (6)
Operation manual (1)

Recommended equipment and cables

Editing control unit:
PVE-500, BVE-900/910/2000, BVE-600, RM-450

VTR:
UVW Series, SVO Series, PVW Series, EVO Series, BVU Series, VO Series

Audio mixer:
MXP-290, VSP-A600

Cables:
RCC-5G/10G/30G 9-pin remote ontrol cables, SWC-2530D switcher control cable

Design and specifications are subject to change without notice.

A-roll edit
An edit using one player and one recorder for basic cut editing.

A/B roll edit
An edit using two players and one recorder, to permit special effects such as mix and wipe.

B–Y signal
A color difference signal. The blue signal minus the Y signal.

Background picture
In animation effects, the picture into which the foreground picture is inserted. In transition effects, the picture that is replaced as the effect progresses (FROM picture). The picture selected with the BACKGROUND bus buttons.

Bus
An internal signal path. Signals selected for input to the bus are passed on to the next process.

Chroma
In colors, hue and saturation.

Chroma key
Key effect in which a particular color (usually a highly saturated blue) is used to cut holes in a background picture.

Color bar
A test signal displayed on a monitor screen as vertical stripes of different colors, used to adjust hue and saturation.

Color matte
An internally generated color signal with adjustable hue, saturation, and luminance.

Component signal
Video signal containing separate luminance (Y) and color difference (R–Y, B–Y) video components.

Composite signal
Video signal containing video, color burst, and sync signals.

Crosspoint
An electronic switch where video or audio signal lines cross. When the switch is closed, usually by pressing a button, multiple input signals and one or more output signals are allowed to pass.

Cut
An instantaneous switch from one picture to another, or the instantaneous insertion or deletion of a key signal.

Downstream key (DSK)
Effect used to superimpose characters or graphics over output signals. Called downstream key because superimposing takes place in the final stages of processing after other effects have been applied. Requires a key source signal to define the outlines of the characters or graphics, and a key fill signal to fill the outlines. *See also* "title key".

Editing control unit
A video editor with functions for remote control of VCRs, video switchers, audio switchers, and other video editing equipment.

Field
In the NTSC color television system, 262.5 horizontal scanning lines. In the PAL color television system, 312.5 horizontal scanning lines. Odd lines are scanned for the first field before returning to the top of the screen to scan even lines. A frame is composed of two fields: the odd and even fields.

Foreground picture
In animation effects, the picture inserted into the background picture. In transition effects, the picture left on the screen after the effect finishes (TO picture). The picture selected with the FOREGROUND bus buttons.

Frame
Two fields, containing all the information in a complete picture. *See also* "Field".

GPI
Abbreviation of general purpose interface. An interface used to carry out remote control from editing control units lacking a formal interface.

Hue
The attribute of colors that allows them to be classified as red, green, blue, and so on. Red and pink have the same hue, but different saturations.

Key clip
In luminance keys, to specify a reference luminance level. The part of the signal above the reference level is used as the key source signal. *See also* "key source".

Key fill
A signal used to fill the hole cut with the key source signal.

Key frame
User program effect data which defines the effect at a specific point. User program effects are made up of sequentially executed key frames.

Key invert
In luminance key, to reverse the polarity of a key source signal so that the hole is cut with the darker part of the signal.

Key mask
To hide part of a title key or downstream key signal so that only the desired part is used.

Key source
A signal used to cut a hole in a background picture for insertion of a key fill signal.

Luminance key
Key effect in which a luminance signal is used to define the outlines of characters or graphics.

Luminance signal
The part of a video signal that carries brightness information. Also called the Y signal.

Mask
See "Key mask".

Mix
Effect in which one signal fades in while another fades out. Also called dissolve.

Preroll
Running a videotape a certain distance before the edit IN point in order to bring the tape to a steady speed and synchronize it with other tapes.

Postroll
Running a videotape a certain distance past the edit OUT point in order to monitor the video that follows.

R–Y signal
A color difference signal. The red signal minus the Y signal.

Saturation
The extent to which a color has been diluted by white. Pure red is fully saturated, while pink is diluted.

S-video signal
A video signal with separate luminance (Y) and chrominance (C) components. As opposed to composite video, S-video provides higher quality by eliminating interference between the Y and C signals.

Snapshot
Data containing the settings of specific controls on the control panel. Snapshots can be saved and recalled to restore the control panel to a desired state.

Subcarrier (SC)
The part of a video signal that carries color information. The amplitude represents saturation, and the relative phase against the color burst signal represents hue. Also called the color subcarrier.

Title key
Effect used to superimpose foreground characters or graphics on a background. Requires a key source signal to define the outlines of the characters or graphics, and a key fill signal to fill the outlines. *See also* "downstream key".

Transition
A period during which one picture is replaced by another, or a period during which a key is inserted or deleted.

Wipe
A transition effect in which one picture moves in to replace another. Often the new picture appears as a geometrical shape such as a circle or star.

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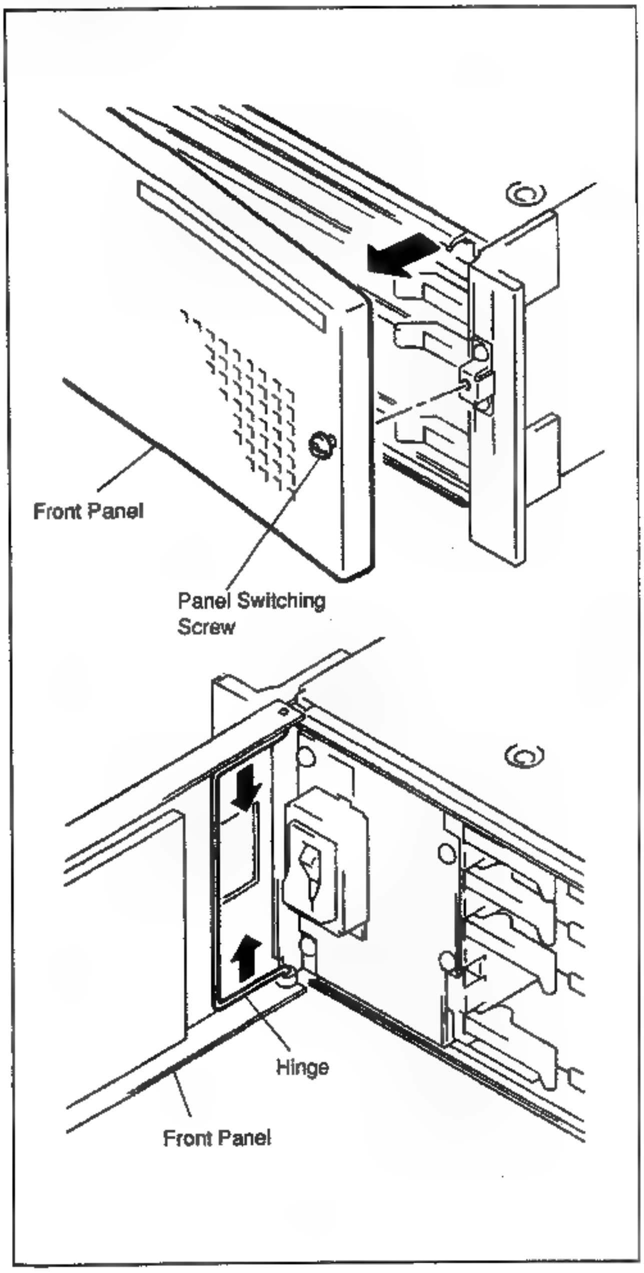
SECTION 2
SERVICE INFORMATION

2-1. REMOVAL OF CABINET

<PROCESS UNIT>

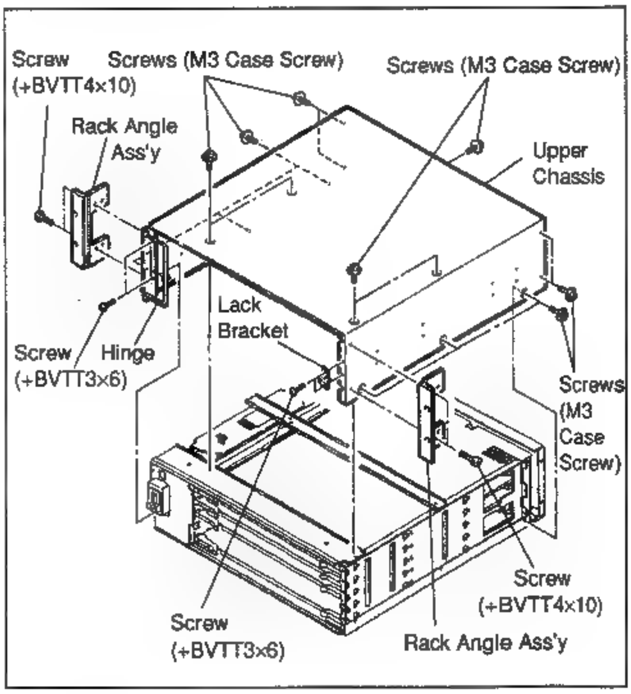
FRONT PANEL

① Loosen the panel switching screw and then open the Front Panel.
② Pushing the hinge in the direction of the arrow, remove the Front Panel.


Front Panel
Panel Switching Screw
Hinge
Front Panel

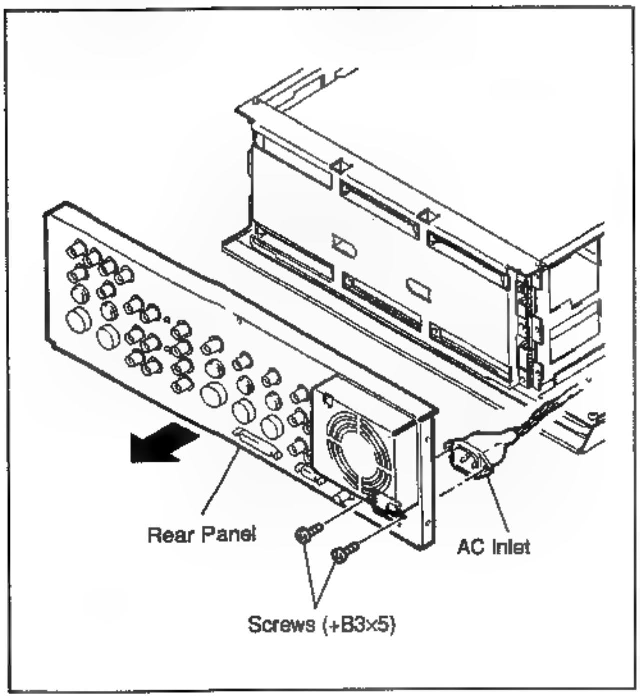
UPPER CHASSIS

① Remove the Front Panel. (Refer to "Removal of FRONT PANEL".)
② Remove the four screws (+BVTT4×10) and then remove the Rack Angle Assy
③ Remove the two screws (+BVTT3×6) and then remove the Lock Bracket.
④ Remove the two screws (+BVTT3×6) securing the hinge.
⑤ Remove the fifteen screws (M3 case screw) and then remove the Upper Chassis.


Screw (+BVTT4×10)
Screws (M3 Case Screw)
Screws (M3 Case Screw)
Rack Angle Ass'y
Upper Chassis
Lack Bracket
Screw (+BVTT3×6)
Hinge
Screws (M3 Case Screw)
Screw (+BVTT4×10)
Screw (+BVTT3×6)
Rack Angle Ass'y

REAR PANEL

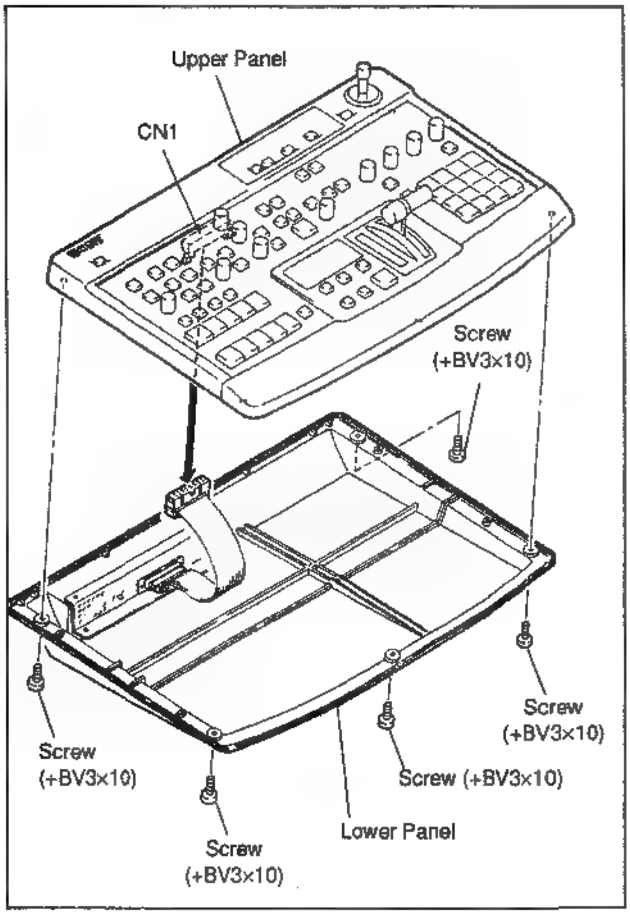
① Remove the Front Panel. (Refer to "Removal of FRONT PANEL").
② Remove the Upper Chassis. (Refer to "Removal of UPPER CHASSIS.)
③ Remove the two screws (+B3×5) installing the AC inlet.
④ Remove the three connectors on the Rear Panel from the three connectors on the Mother Board and then remove the Rear Panel in the direction of the arrow.


Rear Panel
AC Inlet
Screws (+B3×5)

<CONTROL PANEL>

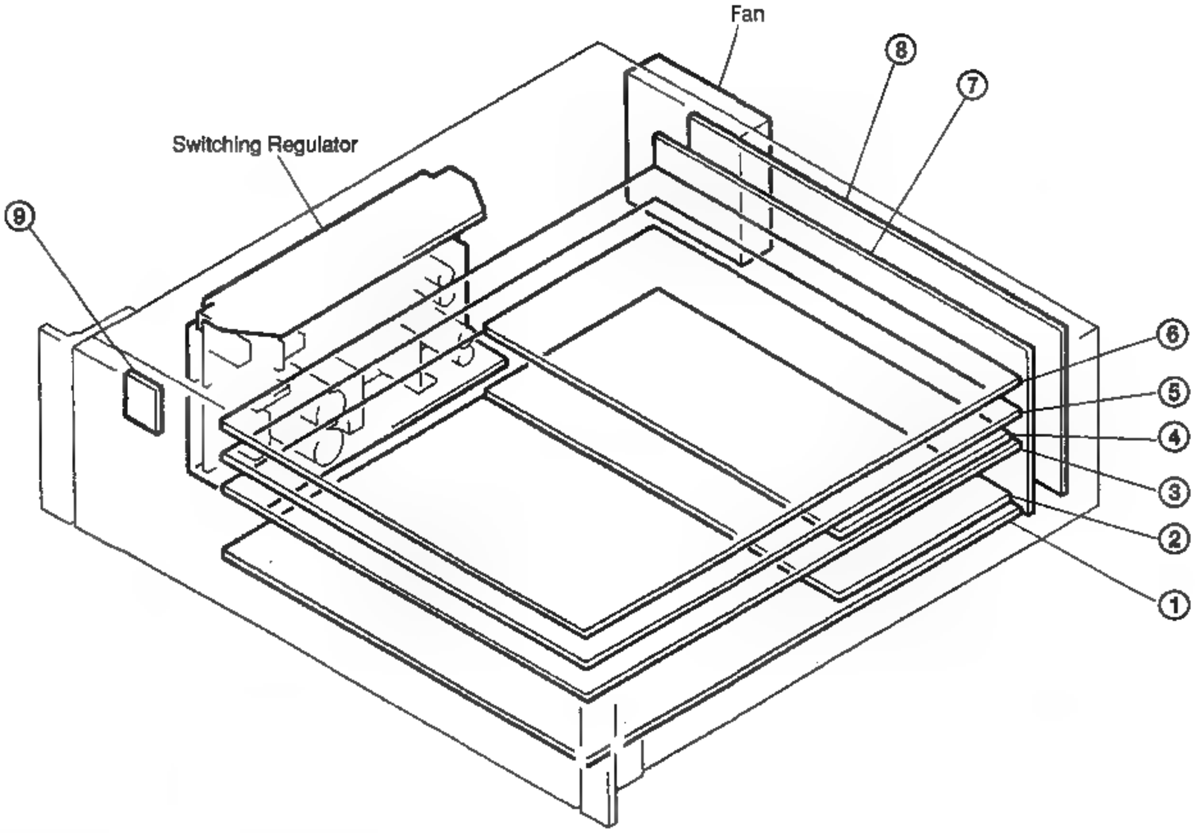
LOWER PANEL

① Remove the five screws (+BV3×10).
② Disconnect the connector CN1 on the KY-309 board and then remove the Lower Panel.


Upper Panel
CN1
Screw
(+BV3×10)
Screw
(+BV3×10)
Screw (+BV3×10)
Screw
(+BV3×10)
Lower Panel
Screw
(+BV3×10)

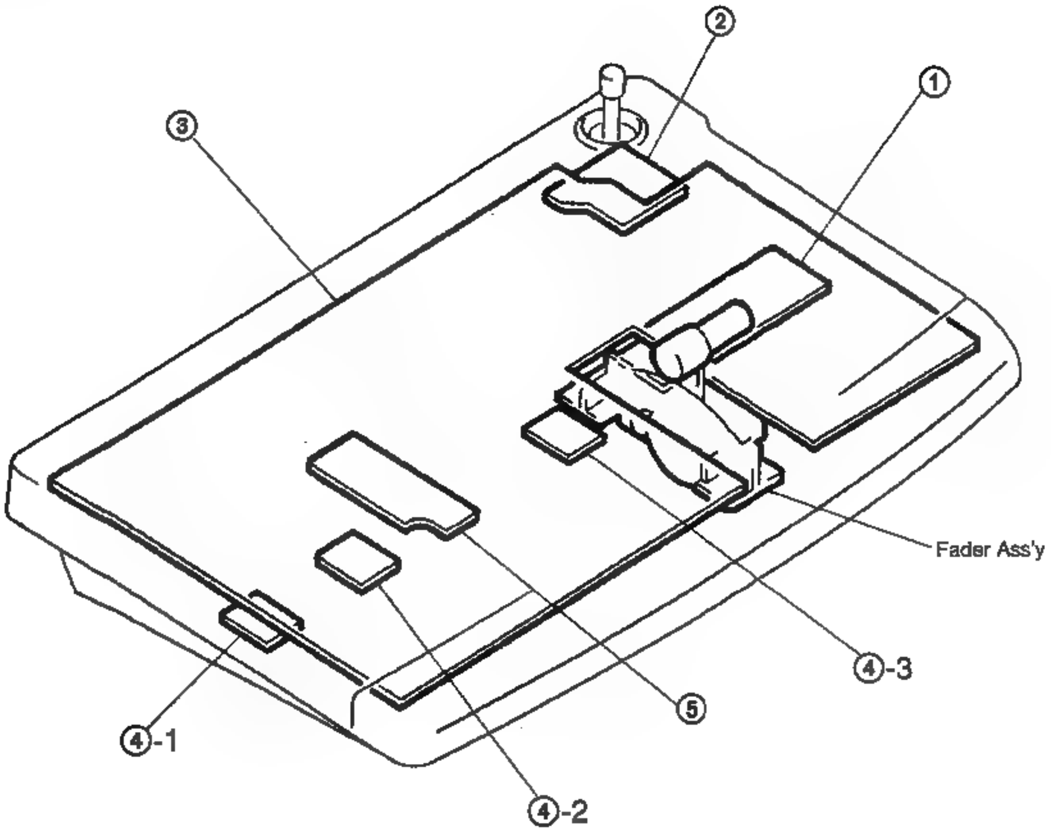
2-2. BOARDS LOCATION

<PROCESS UNIT>


Fan
⑧
⑦
Switching Regulator
⑨
⑥
⑤
④
③
②
①

① DA-79 Board : D/A Converter
② DK-6 Board : DSK (Downstream Keyer) (option)
③ MY-62 Board : Field Memory
④ PU-84 Board : Address Operation
⑤ SY-199 Board : System Control
⑥ AD-104 Board : A/D Converter
⑦ MB-548 Board : Mother board
⑧ CN-981 Board : Rear Panel Connector
⑨ LE-55 Board : Power Indicator

<CONTROL PANEL>



① VR-138 Board : Effect Control
② KY-311 Board : Positioner
③ KY-309 Board : Function Key
(4-1) VR-135 Board : EDGE Control
(4-2) VR-135 Board : Title Control
(4-3) VR-135 Board : DSK (Downstream Keyer) Control
⑤ VR-137 Board : MATTES Control

2-3. PRINTED CIRCUIT BOARD FUNCTION

① "SP Code" means Supply Code.
② "PCB" in the SP Code column means Printed Circuit Board, "MCB" in the SP Code column means Mounted Circuit Board.

<PROCESS UNIT>

BOARD	CIRCUIT FUNCTION	SP CODE
AD-104/P	A/D Converter	O(MCB)
CN-981	Rear Panel Connector	O(MCB)
DA-79/P	D/A Converter	O(MCB)
DK-6(*1)	DSK(Downstream Keyer)	U
LE-55	Power Indicator	O(PCB)
MB-548	Mother Board	O(MCB)
MY-62	Field Memory	O(MCB)
PU-84(*2)	Address Operation	O(MCB)
SY-199/P	System Control	O(MCB)

<CONTROL PANEL>

BOARD	CIRCUIT FUNCTION	SP CODE
KY-309	Function Key	O(MCB)
KY-311	Positioner	O(MCB)
VR-135	EDGE Control Title Control DSK(Downstream Keyer) Control	O(PCB)
VR-137	MATTES Control	O(PCB)
VR-138	Effects Control	O(PCB)

NOTE (*1) DK-6 Board is Optional Board; BKDF-504/P.
(*2) PU-84 Board is Optional Board; BKDF-301/P.

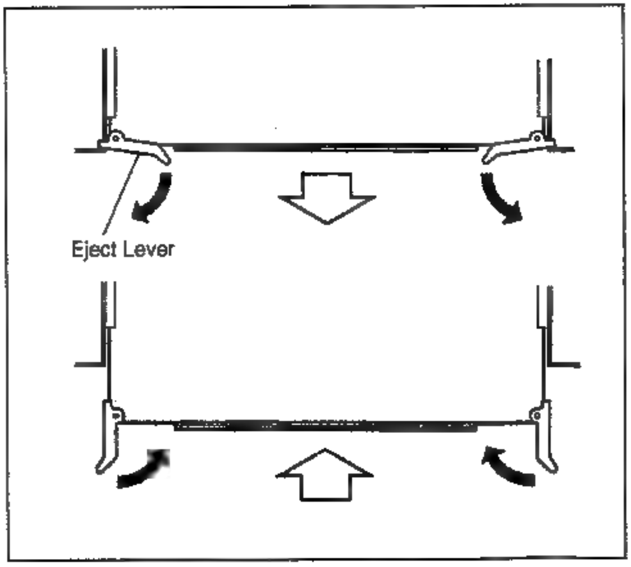
2-4. REPLACEMENT OF BOARD

2-4-1. Plug-in Board Removing/Inserting

NOTE In more than two seconds after turning the power on the Process Unit OFF and remove or insert the Plug-in boards (AD-104/P, DA-79/P, MY-62 and SY-199/P boards) definitely. (If the board is inserted in a state of turning the power on, the fuse on the board has run out and the board can be not used.

Plug-in Borad Removing
Pull up the eject levers on the board in the direction of the arrow, and then remove the board from the connectors on the MB-548 board.

Plug-in Board Inserting
The eject levers pull up as shown in the figure, insert the board. After inserting the board, push down the eject levers in the direction of the arrow and connect certainly to the connectors on the MB-548 board.

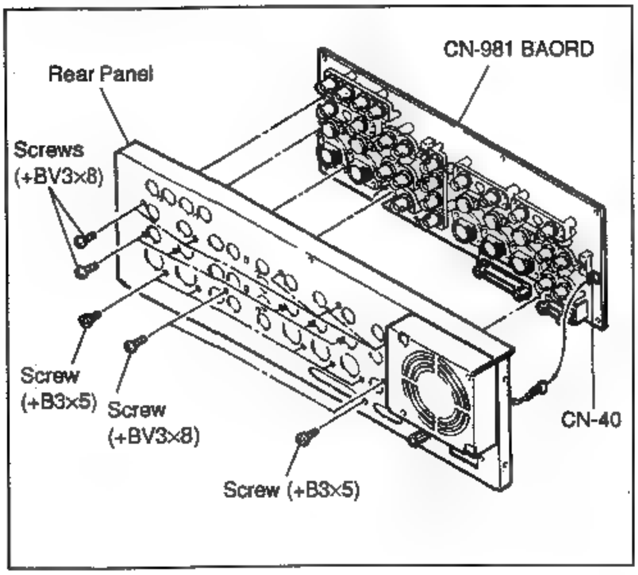


2-4-2. Board Replacement

<PROCESS UNIT>

CN-981 Board:

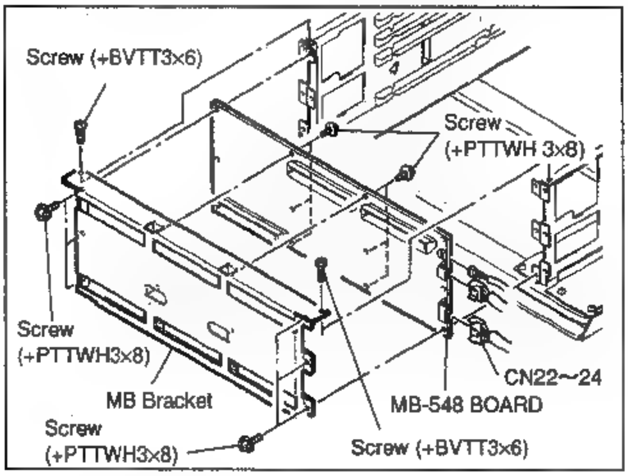
① Remove the Rear Panel. (Refer to "REAR PANEL" of Section 2-1. REMOVAL OF CABINET.)
② Remove the thirteen screws (+BV3×8) and six screws (+B3×5).
③ Disconnect the connector CN40 on the CN-981 board and then remove the CN-981 board.


CN-981 BAORD
Rear Panel
Screws
(+BV3×8)
Screw
(+B3×5)
Screw
(+BV3×8)
CN-40
Screw (+B3×5)

④ Replace a new one in the reverse procedure of steps ① through ③.

MB-548 Board:

① Remove all the plug-in boards.
② Remove the Rear Panel. (Refer to "REAR PANEL" of Section 2-1. REMOVAL OF CABINET.)
③ Disconnect the connectors CN22, CN23 and CN24 on the MB-548 board.
④ Remove the six screws (+PTTWH M3×8) and two screws (+BVTT3×6), and then remove the Mother Board Assy.
⑤ Remove the six screws (+PTTWH M3×8) and then remove the MB-548 board from the MB Bracket.

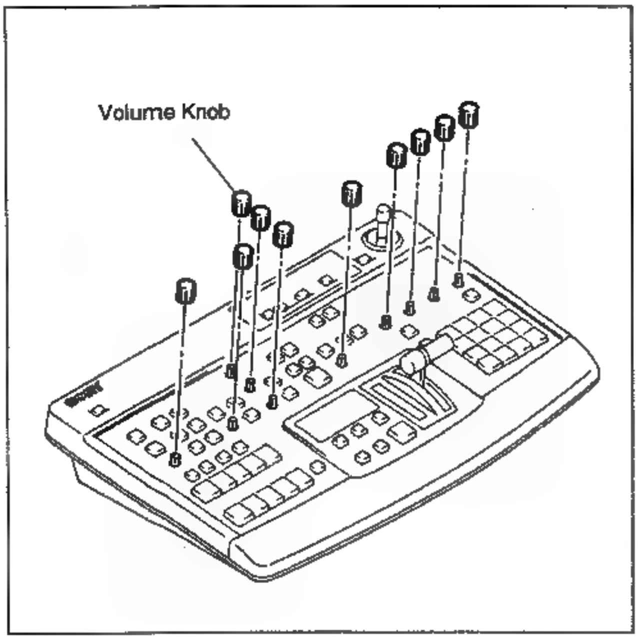

Screw (+BVTT3×6)
Screw
(+PTTWH 3×8)
Screw
(+PTTWH3×8)
MB Bracket
Screw
(+PTTWH3×8)
CN22~24
MB-548 BOARD
Screw (+BVTT3×6)

⑥ Install the MB Bracket to a new MB-548 board with the six screws (+PTTWH M3×8).
⑦ Thread the six screws (+PTTWH M3×8) to the Mother Board Assy but do not tighten.
⑧ Insert the AD-104/P board into the No.I slot and the DA-79/P board into the No.5 slot and then connect the connectors on the AD-104/P and DA-79/P boards to the connectors on the MB-548 board.
⑨ Tighten the six screws which is threaded snugly in step 7.

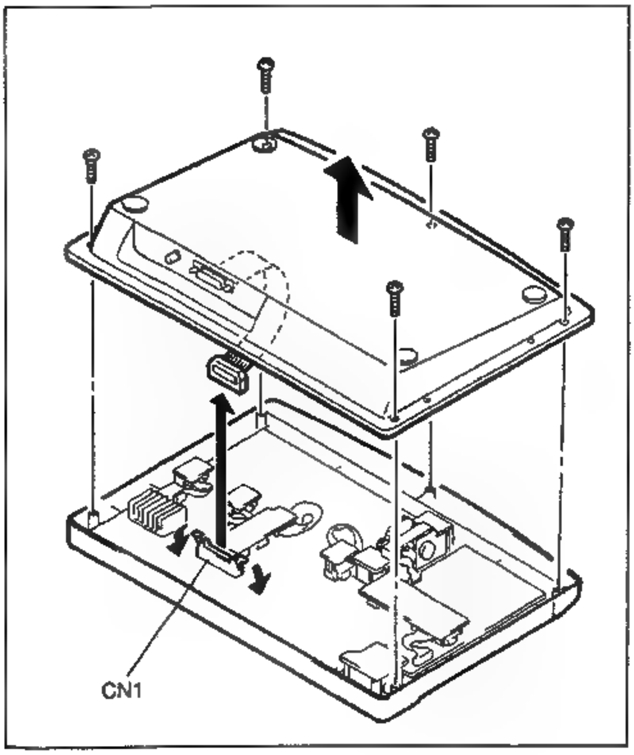
<CONTROL PANEL>

KY-309 Board:

① Remove ten volume knobs.

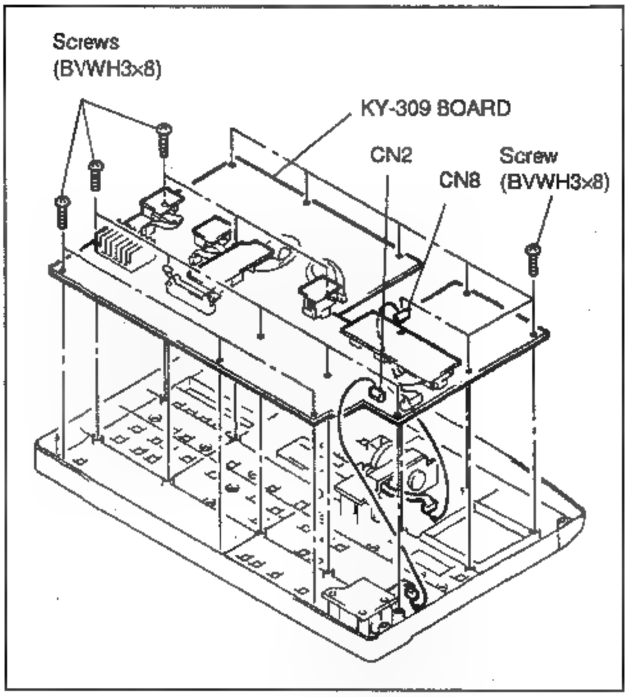

Volume Knob

② Remove the Lower Panel. (Refer to "LOWER PANEL" of Section 2-1. REMOVAL OF CABINET.)



③ Remove connectors CN2 and CN8 on the KY-309 board.

④ Remove eighteen screws (+BVWH 3 × 8) and remove the KY-309 board.


Screws
(BVWH3×8)
KY-309 BOARD
CN2
CN8
Screw
(BVWH3×8)

⑤ Replace a new one in the reverse procedure of steps ① through ④.

2-5. REPLACEMENT OF SWITCHING REGULATOR

2-5-1. Primary Circuit and Electric Shock

The most of the switching regulator is primary side circuit. Take care of an electric shock when removing the Switching Regulator for replacement or another reason.

2-5-2. Switching Regulator Removal

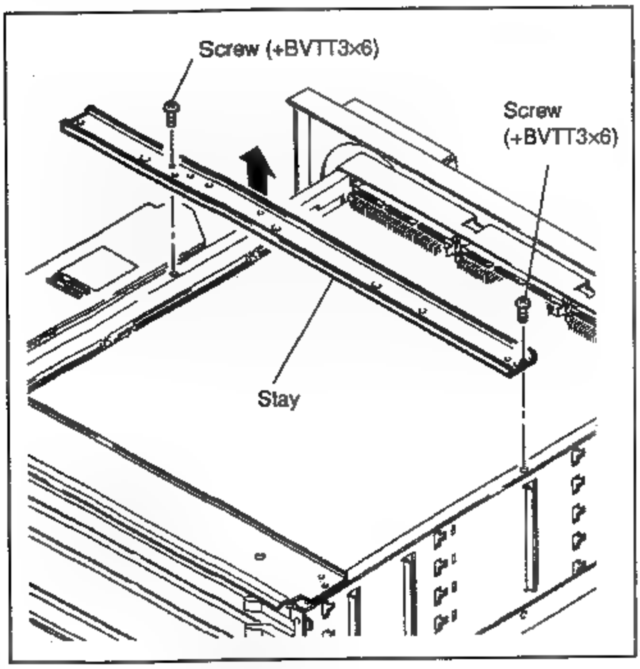
NOTE When replacement of the Switching Regulator, be sure to turn the power OFF and start work.

<REPLACEMENT PROCEDURE>

① Remove the Front Panel. (Refer to "FRONT PANEL" of Section 2-1. REMOVAL OF CABINET.)

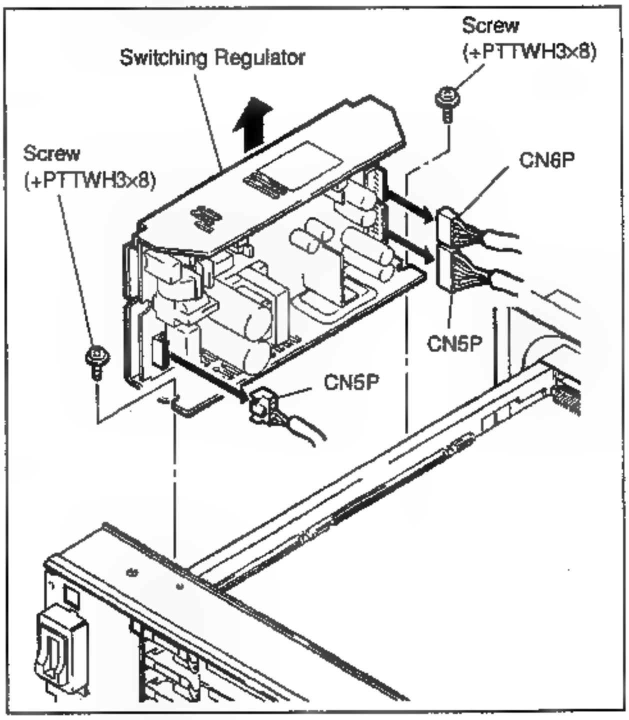
② Remove the Upper Chassis. (Refer to "UPPER CHASSIS" of Section 2-1. REMOVAL OF CABINET.)

③ Remove the two screws (+BVTT 3 × 6) and then remove the stay.


Screw (+BVTT3x6)
Screw (+BVTT3x6)
Stay

④ Remove the three connectors (CN5P, CN6P and CN8P) from the harnesses.

⑤ Remove the two screws (+PTTWH M3 × 8) and pull up the Switching Regulator.


Switching Regulator
Screw (+PTTWH3x8)
Screw (+PTTWH3x8)
CN6P
CN5P
CN5P

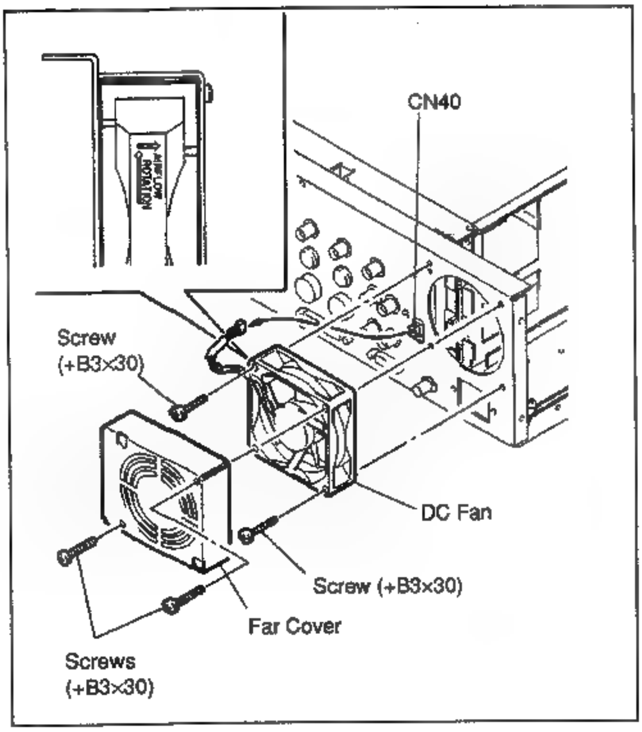
⑥ Replace a new one in the reverse procedure of steps ① through ⑤.

2-6. REPLACEMENT OF DC FAN MOTOR

NOTE If the unit serves for about ten thousand times, the DC Fan motor should be replaced.

<REPLACEMENT PROCEDURE>

① Remove the Rear Panel. (Refer to "REAR PANEL" of Section 2-1. REMOVAL OF CABINET.)
② Disconnect the connector CN40 on the CN-981 board.

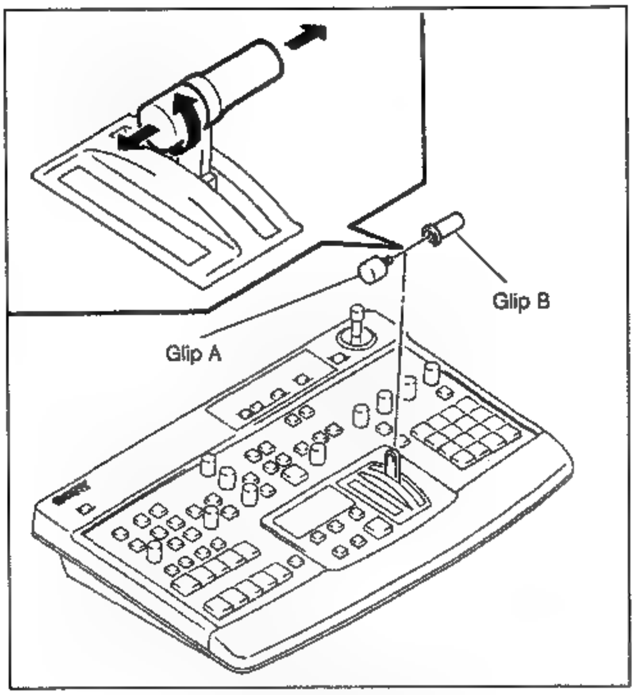

AIRFLOW
ROTATION
CN40
Screw (+B3×30)
DC Fan
Screw (+B3×30)
Far Cover
Screws (+B3×30)

③ Remove the two screws (+B3×30) and then remove the Fan Cover.
④ Remove the two screws (+B3×30) and then remove the DC Fan.
⑤ Replace a new one in the direction of the arrow in the figure in the reverse of steps ① through ④.

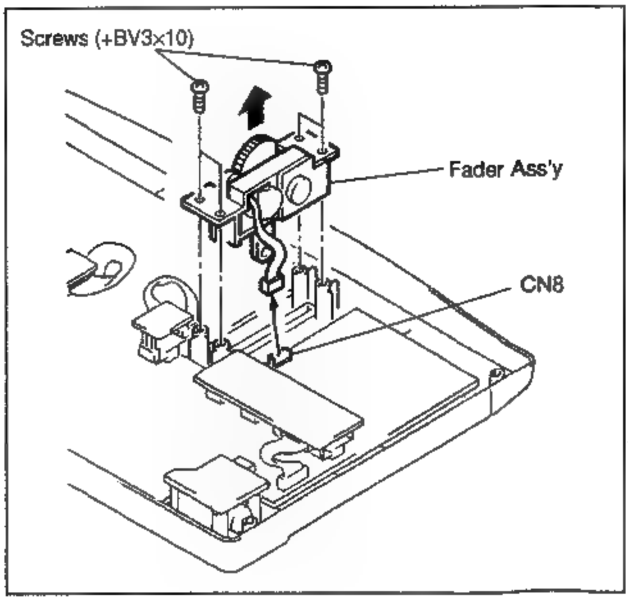
2-7. REPLACEMENT OF MAIN PARTS ON CONTROL PANEL

<FADER ASS'Y>

① Remove the Grip A and Grip B.


Glip B
Glip A

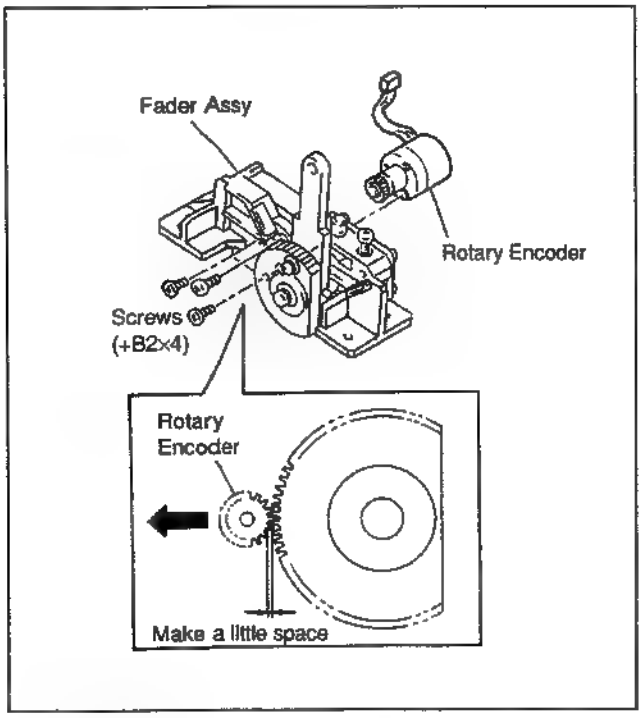
② Remove the Lower Panel. (Refer to "LOWER PANEL" of Section 2-1. REMOVAL OF CABINET.)
③ Remove connector CN8 on the KY-309 board.
Remove four screws (+BV 3 × 10) and remove the Fader Assy.


Screws (+BV3×10)
Fader Ass'y
CN8

④ Replace a new one in the reverse of steps ① through ②.

<POSITION ADJUTMENT of ROTARY ENCODER>

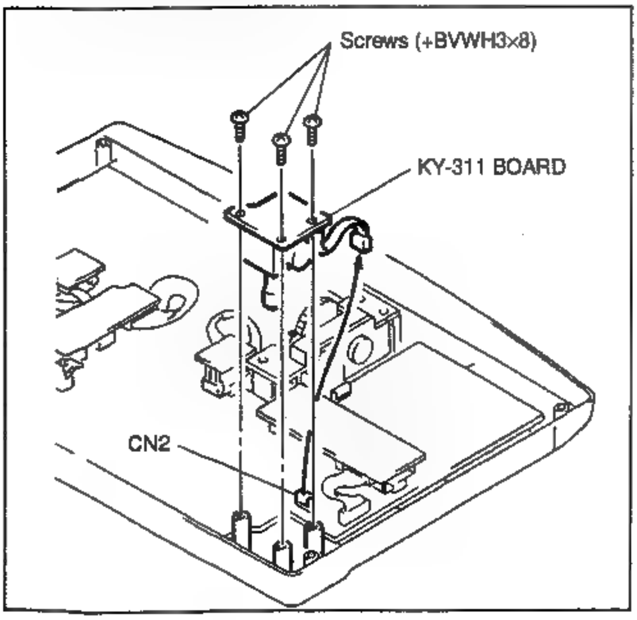
When replaceing a Rotary Encoder, adjust the lever for moving smoothly. Tighten three screws (+B 2 × 4) of a new one.


Fader Assy
Rotary Encoder
Screws
(+B2×4)
Rotary
Encoder
Make a little space

<JOG LEVER>

① Remove the lower panel. (Refer to "LOWER PANEL" of Section 2-1. REMOVAL OF CABINET.)

② Remove connector CN2 on the KY-309 board.
Remove three screws (+BVWH 3 × 8) and remove the KY-311 board with Jog Lever.


Screws (+BVWH3×8)
KY-311 BOARD
CN2

③ Replace a new one in the reverse of steps ① through ②.

2-8. RACK-MOUNTING

This unit can be mouted on an EIA Standard 19-inch rack. When mounting, be sure to use a support angle or slide rail.

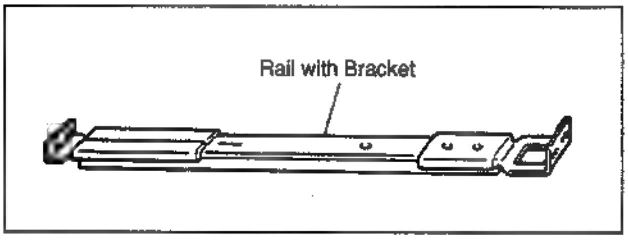
- Recommended slide rail
  RMM-30 (SONY RACK MOUNT RAIL)

2-8-1. When Using RMM-30 (optional accessary)

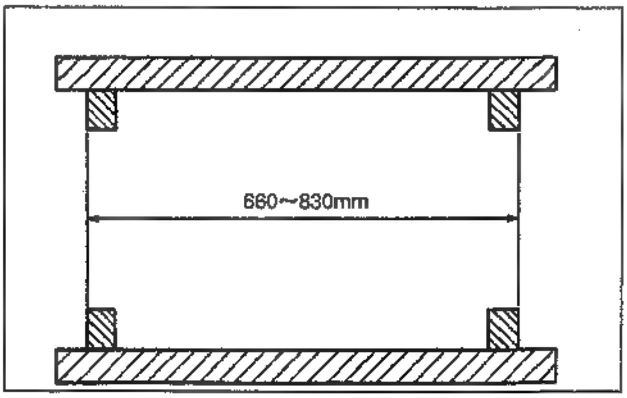
The unit can be mounted easily on the 19-inch standard rack by using one RMM-30(SONY Rack Mount Rail) for one unit.

- Component parts

Rail with bracket	× 2
Screw (+PWH × 10)	× 2
Plate nut M4	× 2
Screw (+B 5 × 8)	× 8


Rail with Bracket

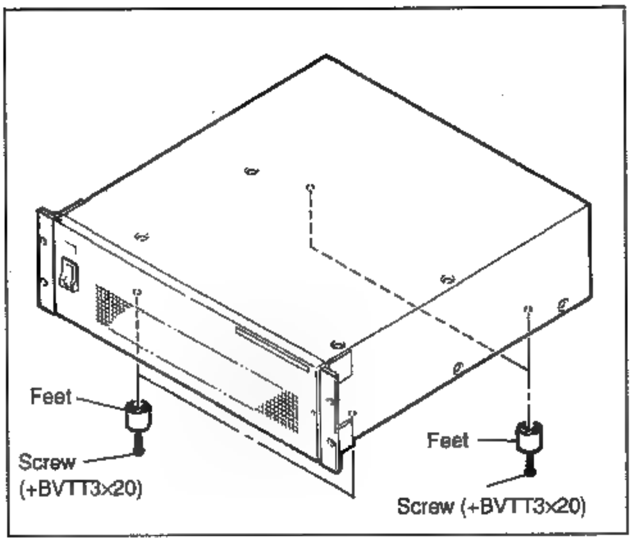
- Usable rack
  One with a depth of 660 to 830 mm



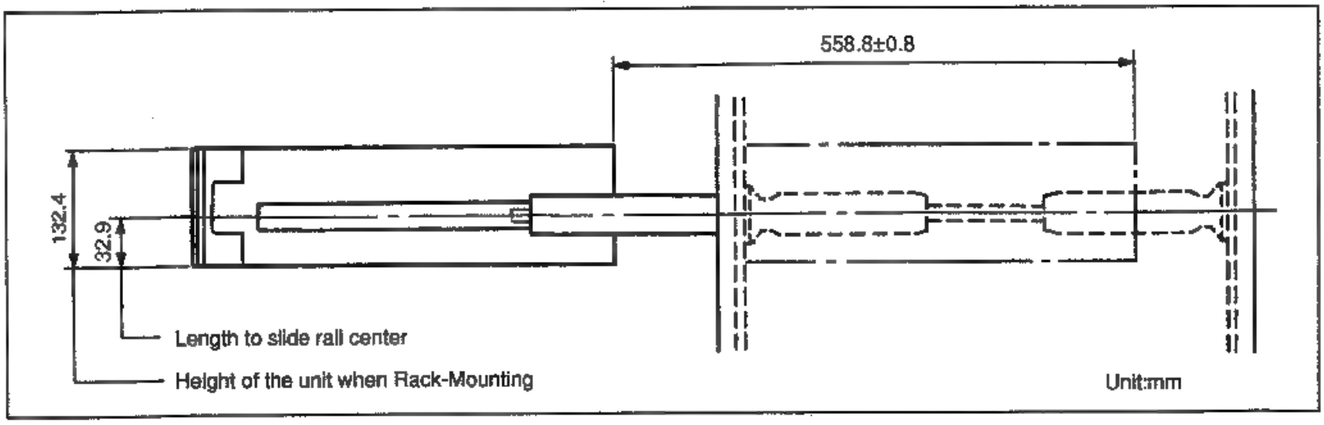
- How to install

① Remove four feet from the bottom of the unit.

② Install the rack mounting rail. For details, refer to INSTALLATION MANUAL packed with the rack mounting rail RMM-30.

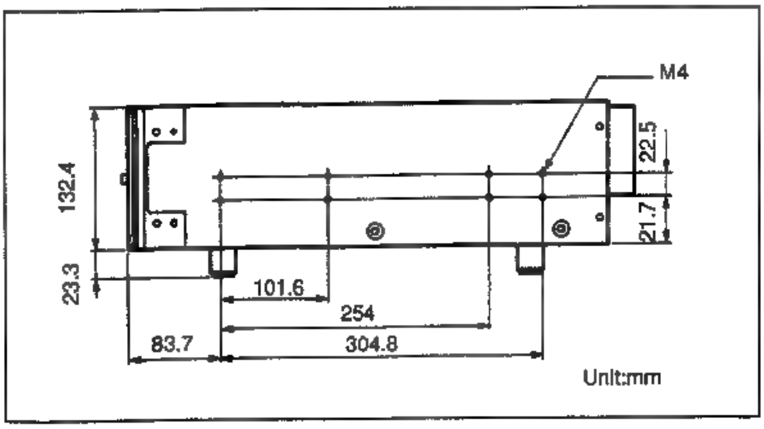

Feet
Screw
(+BVTT3×20)
Feet
Screw (+BVTT3×20)

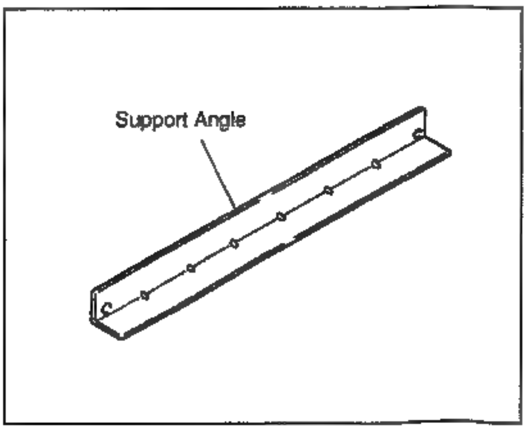
- Maximum movable length of the DFS-300/P is as follows.


558.8±0.8
132.4
32.9
Length to slide rail center
Height of the unit when Rack-Mounting
Unit:mm

2-8-2. In Cases When Other Than RMM-30 is Used:

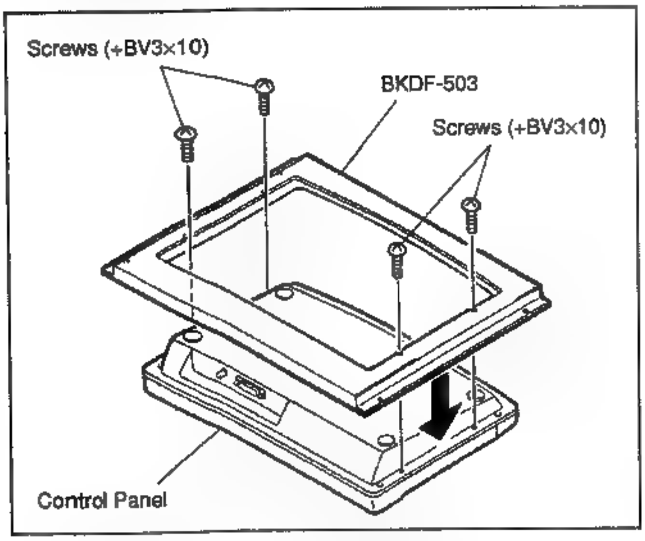
In cases when a support angle or a slide rail that is sold by rack makers is used, check the external dimensions of the unit and the slide rail mounting holes and mount it according to the instruction manual of each rack maker.


M4
132.4
23.3
22.5
21.7
101.6
254
83.7
304.8
Unit:mm

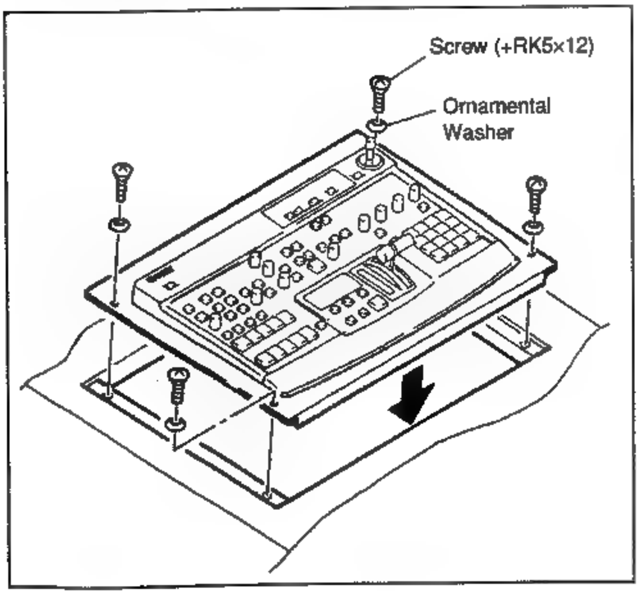

Support Angle

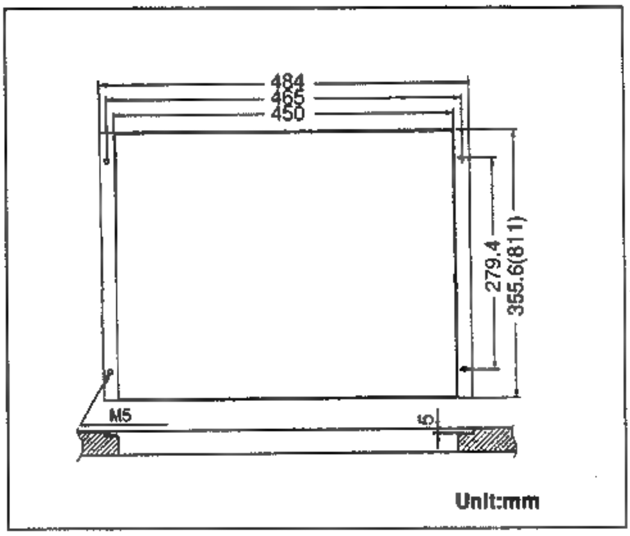
2-8-3. BKDF-503 Installation

① Install the BKDF-503, RACK MOUNT PANEL to the Lower Panel of the Control Panel.
Tighten the supplied accessary four screws (+BV 3 × 10) to the BKDF-503.


Screws (+BV3×10)
BKDF-503
Screws (+BV3×10)
Control Panel

② Fit the BKDF-503 into the adjustment desk.
Tighten the supplied accessary four screws (+RK 5 × 12) and ornament washers (DIA.5) to the BKDF-503.


Screw (+RK5×12)
Ornamental Washer

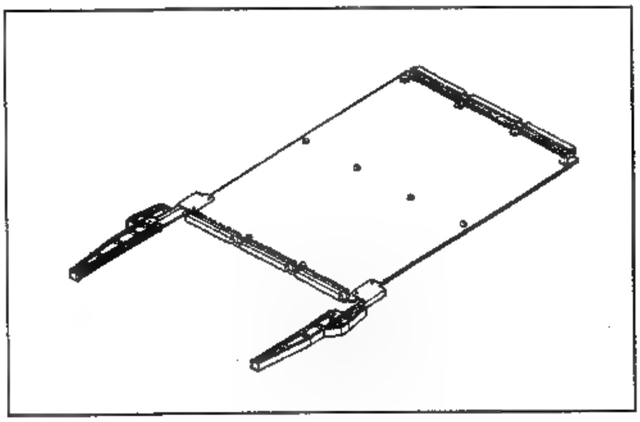

484
465
450
279.4
355.6(8U)
M5
5
Unit:mm

Dimension of installation hole on the adjustment desk

2-9. FIXTURES / MESURING INSTRUMENTS

2-9-1. Fixtures

Extension Board EX-326
Sony Part No. J-6186-940-A
Extension Board EX-326 is used for AD-104/P, DA-79/P, MY-62, SY-199/P Boards to inspect and adjust.



25-pin Control Cable (10m)
Sony Part No. 1-765-378-51
This 25-Pin Control Cable is used for inspection and adjustment.

Connector Cable
Multi Connector Cable (DOBNC)
Sony Part No. J-6031-830-A
Multi Connector Cable (DIBNC)
Sony Part No. J-6031-820-A

Video Cable (S-BNC)
Sony Parts No. J-6381-380-A

Standerd product

Spot Heater	HS-600 (100 V)
	HS-600 (117 V)
	HS-600 (220 V)
	HS-600 (240 V)
Nozzle	HS-616 (for HS-600)
	HS-619 (for HS-600)

These Spot Heater and Nozzle are used for extraction the ICs by warm wind after connecting the Spot Heater and the Nozzle.

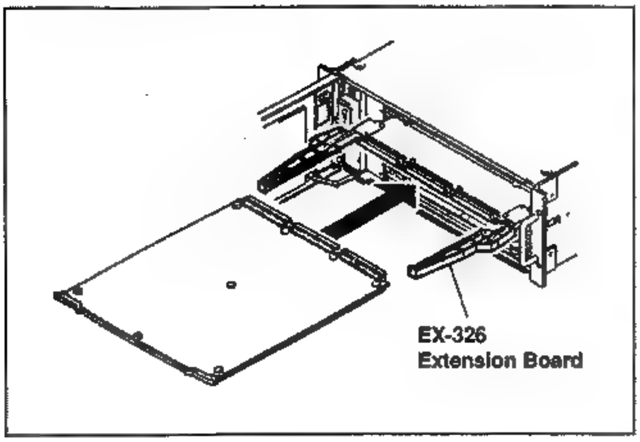
For the above spot Heater and the Nozzle, please contact to the following.
Ikas,Inc
ADDRESS: Executive Center Suite 312, 21601 Devonshire St., Chatsworth, CA. 91311, USA
TEL: 818-882-4116
FAX: 818-341-6466

Bielec:
ADDRESS: Valencia, 40, 08015 Barcelona, Spain
TEL: 34 3 226 44 87
FAX: 34 3 226 69 32

Scope Laboratories:
3 Walton Street, Airport West, Melbourne, Australia
TEL: (03) 338 1566
FAX: (03) 338 5675

2-9-2. Use of Extension Board

① Turn the power OFF. Open the front panel. Pull up the eject levers on the board and remove the board.
② Insert the Extension Board, EX-326 to the slot of the removed board in step ①.
③ Insert the removed board to Extension Board, EX-326.



2-9-3. Mesuring Instruments

1. Composite Signal Generator

   Equivalent: 1410(NTSC)/Tektronix
   1411(PAL)/Tektronix

2. Y/C Signal Generator

   Equivalent: TSG130A(NTSC)/Tektronix
   TSG131A(PAL)/Tektronix

3. Component Signal Generator

   Equivalent: TSG300/Tektronix

4. RGB Signal Generator

   Equivalent: TSG130A(NTSC)/Tektronix
   TSG131A(PAL)/Tektronix

5. Waveform Monitor and Vectorscope

   Equivalent: 1780(NTSC)/Tektronix
   1781(PAL)/Tektronix

6. Video Monitor

   Equivalent: PVM1444Q/Sony

7. Oscilloscope

   Equivalent: 2445/Tektronix

8. Digital Voltmeter

   Equivalent: 3435A/Hewlett Packard

9. Frequency Counter

   Equivalent: 5315/Hewlett Packard

2-10. MATCHING CONNECTOR/CABLE

When connecting cable to the connectors on the connector panel, match those connectors or equivalent with each other as listed below.

DFS-300/P side connector			Matching Connector or Cable	
Connector Function Name		Using Connector	Connector	Sony Parts No.
PGM OUT	COMPOSITE 1, 2 Y/C 1, 2 COMPONENT 1, [illegible]	BNC S-VIDEO, Plug(F) Plug, 12(F)	BNC S-VIDEO, Plug(M) Plug, 12(M)	1-560-069-11 YC-30 V(3 m) 1-562-995-00
KEY OUT		BNC	BNC	1-560-069-11
BLACK BURST OUT	1, 2, 3	BNC	BNC	1-560-069-11
DSK KEY IN	1, 2	BNC	BNC	1-560-069-11
DSK VIDEO IN	COMPOSITE/G/Y 1, 2 R/R-Y B/B-Y	BNC BNC BNC	BNC BNC BNC	1-560-069-11 1-560-069-11 1-560-069-11
VIDEO INPUTS	COMPOSITE 1, 2, 3 Y/C 1, 2, 3 COMPONENT 1, 2, 3 G/Y R/R-Y B/B-Y SYNC	BNC S-VIDEO, Plug(F) Plug, 12(M) BNC BNC BNC BNC	BNC S-VIDEO, Plug(M) Plug, 12(F) BNC BNC BNC BNC	1-560-069-11 YC-30 V(3 m) 1-562-159-00 1-560-069-11 1-560-069-11 1-560-069-11 1-560-069-11
EXT KEY IN		BNC	BNC	1-560-069-11
GEN LOCK IN	1, 2	BNC	BNC	1-560-069-11
T1/CUE		BNC	BNC	1-560-069-11
T2		BNC	BNC	1-560-069-11
CONTROL PANEL		D-SUB, Plug 25P(F)	D-SUB, Plug 25P(M)	(*)
EDITOR		D-SUB, Plug 9P(F)	D-SUB, Plug 9P(M)	1-560-651-00

(*)This connector is attached to the cable of 10 m (1-696-660-11).

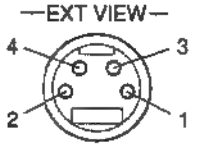
2-11. INPUT/OUTPUT SIGNALS OF CONNECTOR

PGM(Program)OUT COMPOSITE 1, 2

CONNECTOR: BNC
Output voltage: 1.0Vp-p (VBS), (Sync/burst: UC: 0.286Vp-p PAL: 0.300Vp-p)
Output impedance: 75Ω

PGM(Program)OUT Y/C 1, 2

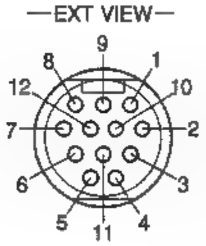
CONNECTOR: S(Separates) terminal 4pin Connector (Female)



Pin No	Signal Name	Function	Specification
1	Y GND	Ground of Luminance Output	Y terminal Output voltage: 1.0Vp-p (VS) (Y Video: 0.714Vp-p,Sync: 0.286Vp-p).....NTSC (Y Video: 0.7Vp-p,Sync: 0.3Vp-p).....PAL Output impedance: 75Ω C terminal Output voltage: 0.630Vp-p (100/7.5/77/7.5 Color Bars) (Burst: 0.286Vp-p).....NTSC (UC) 0.664Vp-p (100/0/75/0 Color Bars) (Burst: 0.3Vp-p).....PAL Output Impedance: 75Ω
2	C GND	Ground of Chrominance Output	
3	Y	Luminance Output	
4	C	Chrominance Output	

PGM(Program)OUT COMPONENT 1,2

CONNECTOR: Component Video Out 12pin Connector(Female)



Pin No	Signal Name	Function	Specification
1	Y OUT	Luminance Output	Output voltage: 1.0Vp-p (VS) (Y Video: 0.714Vp-p, Sync: 0.286Vp-p).....NTSC (Y Video: 0.7Vp-p, Sync: 0.3Vp-p).....PAL Output impedance: 75Ω
2	GND	Luminance Output Common	
3	R-Y	Chrominance R-Y Output	Output voltage: 0.700Vp-p (100/7.5/77/7.5 Color Bars).....NTSC (UC) 0.525Vp-p (100/0/75/0 Color Bars).....PAL Output Impedance: 75Ω
4	GND	R-Y Output Common	
5	B-Y	Chrominance B-Y Output	
6	GND	B-Y Output Common	
7 thru 12	——	——————	——————

KEY OUT

CONNECTOR: BNC
Output voltage: 1.0Vp-p (Sync signal is nothing.)
Output impedance: 75Ω

BLACK BURST OUT 1,2,3

CONNECTOR: BNC
Output voltage: Sync: 0.286Vp-p Burst: 0.286Vp-p.....NTSC
Sync: 0.3Vp-p Burst: 0.3Vp-p.....PAL
Output impedance: 75Ω

DSK(Downstream Keyer)KEY IN 1, 2 + Through Out

(This connector is function to install the optional board, BKDF-504/504P.)
CONNECTOR:BNC
Input voltage: 0.7 through 1.0Vp-p (Sync signal is nothing)
or 1.0Vp-p (Sync: about 0.3Vp-p)
Input impedance: High impedance or 75Ω (with terminate a 75Ω ON/OFF switch)

DSK(Downstream Keyer)VIDEO IN

(This connector is function to the optional board, BKDF-504/504P.)
CONNECTOR: BNC
① When the S301 DSK VIDEO SELECT of DA-79/P board is "COMPOSITE" position.

Connector	Function	Specification
COMPOSITE/G/Y	Composite Input (Through out)	Input voltage: 1.0Vp-p (VBS), (Sync/Burst: 0.286Vp-p).....NTSC 1.0Vp-p (VBS), (Sync/Burst: 0.3Vp-p).....PAL Input Impedance: High impedance or 75Ω (with terminated 75Ω ON/OFF switch)
R/R-Y	———	———
B/B-Y	———	———

② When the S301 DSK VIDEO SELECT of the DA-79/P board is "Y/R-Y/B-Y" position.

Connector	Function	Specification
COMPOSITE/G/Y	Y: Luminance Input	Input voltage: 1.0Vp-p (VS), (Sync: 0.286Vp-p).....NTSC (Sync: 0.3Vp-p).....PAL Input Impedance: High impedance or 75Ω (with terminated 75Ω ON/OFF switch)
R/R-Y	Color differential signal R-Y: Chrominance Input	Input voltage: 0.7Vp-p (100/7.5/77/7.5 Color Bars).....NTSC (UC) 0.525Vp-p (100/0/75/0 Color Bars).....PAL Input impedance: 75Ω
B/B-Y	Color differential signal B-Y: Chrominance Input	

③ When the S301 DSK VIDEO SELECTof the DA-79/P board is "R/G/B" position.

Connector	Function	Specification
COMPOSITE/G/Y	G: RGB Signal ■ Input (with Sync)	Input voltage: 1.0Vp-p (G signal: 0.7Vp-p + Sync: 0.3Vp-p) Input impedance: High impedance or 75Ω (with terminated 75Ω ON/OFF switch)
R/R-Y	R: RGB Signal ■ Input	Input voltage: 0.7Vp-p Input impedance: 75Ω
B/B-Y	B: RGB Signal ■ Input	

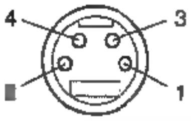
VIDEO INPUTS COMPOSITE 1,2,3

CONNECTOR:BNC
Input voltage: 1.0Vp-p (VBS)
(Sync/Burst: 0.286Vp-p).....NTSC
(Sync/Burst: 0.3Vp-p).....PAL
Input impedance: 75Ω

VIDEO INPUTS Y/C 1, 2, 3

CONNECTOR:S(Separates) terminal 4pin Connector (Female)

—EXT VIEW—

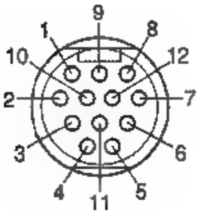


Pin No	Signal Name	Function	Specification
1	Y GND	Ground of Luminance Input	Y terminal Input voltage: 1.0Vp-p (VS) (Y Video: 0.714Vp-p, Sync: 0.286Vp-p).....NTSC (Y Video: 0.7Vp-p, Sync: 0.3Vp-p).....PAL Input impedance: 75Ω C terminal input voltage: 0.630Vp-p (100/7.5/77/7.5 Color Bars) (Burst:0.286Vp-p).....NTSC(UC) 0.664Vp-p (100/0/75/0 Color Bars) (Burst:0.3Vp-p).....PAL Input impedance: 75Ω
2	C GND	Ground of Chrominance Input	
3	Y	Luminance Input	
4	C	Chrominance Input	

VIDEO INPUTS COMPONENT 1, 2, 3

CONNECTOR: Component Video In 12pin Connector(Male)

—EXT VIEW—



Pin No	Signal Name	Function	Specification
1	CPN Y	Luminance input	Input voltage: 1.0 Vp-p (Y Video: 0.714Vp-p, Sync: 0.286Vp-p).....NTSC (Y Video: 0.7Vp-p, Sync: 0.3 Vp-p).....PAL Input impedance: 75Ω
[illegible]	GND	Luminance Input Common	
3	CPN V	Chrominance R-Y Input	Input voltage: 0.7Vp-p (100/7.5/77/7.5 Color Bars).....NTSC (UC) 0.525Vp-p (100/0/75/0 Color Bars).....PAL Input impedance: 75Ω
4	GND	R-Y Input Common	
5	CPN U	Chrominance B-Y Input	
[illegible]	GND	B-Y Input Common	
7 thru 9	——	————————	————————————
10	GND	Ground	————————————
11 thru 12	——	————————	————————————

VIDEO INPUTS4 COMPONENT

CONNECTOR; BNC

① When the S4 VIDEO INPUT4 of the AD-104/P board is "Y/R-Y/B-Y" position.

Connector	Function	Specification
G/Y	Y: Luminance input	Input voltage: 1.0Vp-p (Sync: 0.286Vp-p).....NTSC 1.0Vp-p (Sync: 0.300Vp-p).....PAL Input impedance: 75Ω
R/R-Y	Color differential signal R-Y: Chrominance input	Input voltage: 0.7Vp-p (100/7.5/77/7.5 Color bars).....NTSC(UC) 0.525Vp-p (100/0/75/0 Color bars).....PAL Input impedance: 75Ω
B/B-Y	Color differential signal B-Y: Chrominance input	

② When the S4 VIDEO INPUT4 of the AD-104/P board is "R/G/B" position.

Connector	Function	Specification
G/Y	G: RGB signal G input (with Sync)	Input voltage: 0.7Vp-p (G signal: 0.7Vp-p + Sync: 0.3Vp-p) Input impedance: 75Ω
R/R-Y	R: RGB Signal R input	Input voltage: 0.7Vp-p Input impedance: 75Ω
B/B-Y	B: RGB Signal B input	

③ When the S4 VIDEO INPUT4 of the AD-104/P board is "R/G/B/S" position.

Connector	Function	Specification
G/Y	G: RGB signal G Input (without Sync)	Input voltage: 0.7Vp-p Input impedance: 75Ω
R/R-Y	R: RGB Signal R input	Input voltage: 0.7Vp-p Input impedance: 75Ω
B/B-Y	B: RGB Signal B Input	
SYNC	SYNC: Sync input	Input voltage: 0.286Vp-p through 4.0Vp-p Input impedance: 75Ω

EXT KEY IN

CONNECTOR: BNC
Input voltage: 0.7 through 1.0Vp-p (The voltage of Sync is nothing)
or 1.0Vp-p (Sync: about 0.3Vp-p)
Input impedance: 75Ω

GEN LOCK IN 1, 2 + Through Out

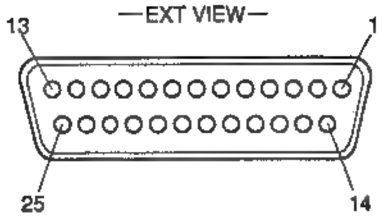
CONNECTOR: BNC
Input voltage: 0.43Vp-p (BB), (Sync/Burst: 0.286Vp-p) ...NTSC
(Sync: 0.3Vp-p Burst: 0.3Vp-p) ...PAL
Input impedance: High impedance or 75Ω (with terminated 75Ω ON/OFF switch)

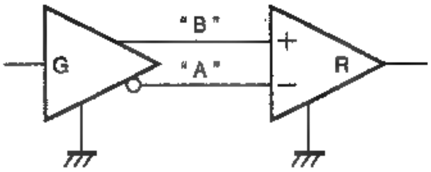
T1/CUE, T2

CONNECTOR: BNC
Input voltage: TTL level

CONTROL PANEL(PROCESS UNIT SIDE)

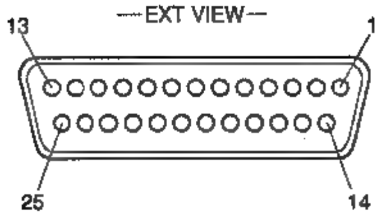
CONNECTOR: D-SUB 25P(Female)

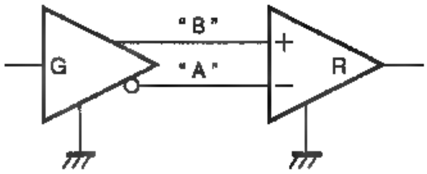


Pin No	Signal name	Function	Specification
1	GND	Frame Ground	Definition of A and B  A < B → "1" (MARK) A > B → "0" (SPACE)
2	DC CON	12V Output	
3	KRD+	Receive Data "B"	
4	GND	Receive Common	
5	KTD+	Transmit Data "B"	
6	GND	Transmit common	
7	RVD+	Transmit VD "B"	
8	GND	Ground	
9 thru 10	NOT USED	———	
11	GND	Ground	
12	GND	Ground	
13	GND	Ground	
14	DC CON	12V Output	
15	DC CON	12V Output	
16	KRD−	Receive Data "A"	
17	GND	Receive Common	
18	KTD−	Transmit Data "A"	
19	GND	Transmit Common	
20	RVD−	Transmit VD "A"	
21 thru 24	GND	Ground	
25	GND	Frame Ground	

CONTROL PANEL (CONTROL PANEL SIDE)

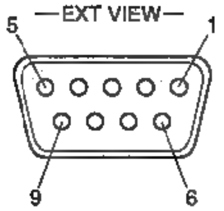
CONNECTOR: D-SUB 25P(Female)

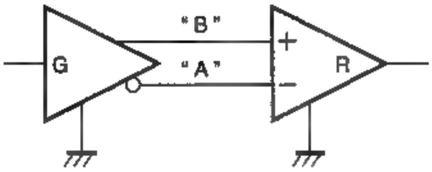


Pin No	Signal name	Function	Specification
1	FG	Frame Ground	Definition of A and B  A < B ➡ "1" (MARK) A > B ➡ "0" (SPACE)
2	+12 V	12 V Input	
3	MIT+	Transmit Data "B"	
4	GND	Transmit common	
5	RCV+	Receive Data "B"	
6	GND	Receive Common	
7	RVD+	Receive VD "B"	
8	GND	Ground	
9	NOT USED	————	
10	NOT USED	————	
11	GND	Ground	
12	GND	Ground	
13	GND	Ground	
14	+12 V	12 V Input	
15	+12 V	12 V Input	
16	MIT–	Transmit Data "A"	
17	GND	Transmit Common	
18	RCV–	Receive Data "A"	
19	GND	Receive Common	
20	RVD–	Receive VD "A"	
21 thru 24	GND	Ground	
25	FG	Frame Ground	

EDITOR CONNECTOR

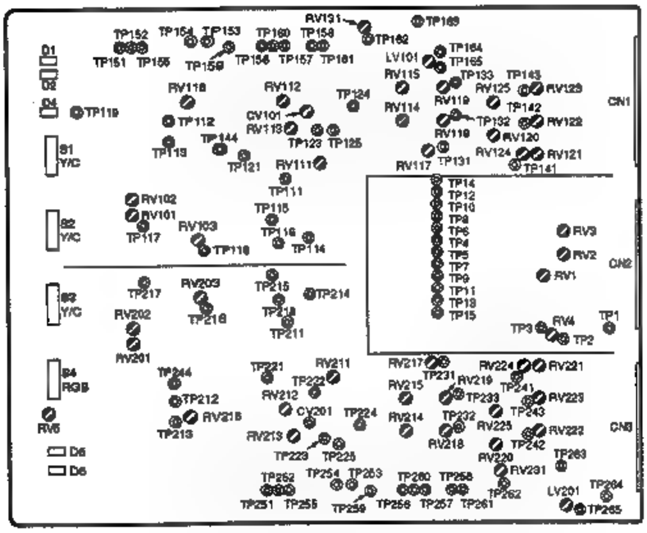
CONNECTOR: D-SUB 9P(Female)



Pin No	Signal name	Function	Specification
1	GND	Frame Ground	Definition of A and B  A < B ➡ "1" (MARK) A > B ➡ "0" (SPACE)
2	XMIT−	Transmit "A"	
3	RCV+	Receive "B"	
4	GND	Receive Common	
5	NOT USED	———	
6	GND	Transmit Common	
7	XMIT+	Transmit "B"	
8	RCV−	Receive "A"	
9	GND	Frame Ground	

2-12. EXPLAIN OF SWITCH/INDICATOR/ VOLUME

AD-104/P Board (A side)



Indicator

D1(C14): +12V indicator (apple-green)
This indicator shows the +12V is supplied (PS1 doesn't go off) or not.
Indicated in apple-green when the +12V is supplied.

D2(C14): –12V indicator (apple-green)
This indicator shows the –12V is supplied (PS2 doesn't go off) or not.
Indicated in apple-green when the –12V is supplied.

D4(C14): +5V indicator (apple-green)
This indicator shows the +5V is supplied (PS3 doesn't go off) or not.
Indicated in apple-green when the +5V is supplied.

D5(K14): A BKGD indicator (orange)
This indicator shows that A bus of AD-104/P board selects BKGD or not. Indicated in orange when the A bus of AD-104/P board selects BKGD. Goes off when the INTERNAL VIDEO is selected to BKGD.

D6(K14): B BKGD indicator (orange)
This indicator shows that B bus of AD-104/P board selects BKGD or not. Indicated in orange when the B bus of AD-104/P board selects BKGD. Goes off when the INTERNAL VIDEO is selected to BKGD.

Volume

CV101(C8): A COLOR F LOCK trimmer capacitor
Adjust the A-CH chroma decoder color lock.

CV201(K8): B COLOR F LOCK trimmer capasitor
Adjust the B-CH chroma decoder color lock.

LV101(B6): A VFO BIAS coil
Adjust the A-CH VFO control voltage centering.

LV201(M3): A VFO BIAS coil
Adjust the B-CH VFO control voltage centering.

RV1(G3): RGB Y GAIN control
Adjust the Y gain value when the RGB/RGBS is input.

RV2(F3): RGB R-Y GAIN control
Adjust the R-Y gain value when the RGB/ RGBS is input.

RV3(F3): RGB G-Y GAIN control
Adjust the G-Y gain value when the RGB/ RGBS is input.

RV4(H3): EXT KEY DELAY FINE control
Preform fine adjustment of the TITLE (EXT KEY) delay vlaue.

RV5(K14): EXT KEY CLIP control
Adjust the slice level of the TITLE (EXT KEY) input signal.

RV101(E12): A CPST Y GAIN control
Adjust the A-CH Y gain of the composite input.

RV102(E12): A CPST C GAIN control
Adjust the A-CH chroma level of the composite input.

RV103(F11): A APC LOCK control
Adjust the A-CH burst lock of the digital Y/C separated clock.

RV111(D8): A SEP Y GAIN control
Adjust the A-CH S input Y gain.

RV112(C9): A SEP C GAIN control
Adjust the A-CH chroma S input gain.

RV113(C9): A CPST & SEP HUE control
Perform the HUE adjustment of the A-CH composite signal and the S input signal.

RV114(C6): A CPST & SEP R-Y GAIN control
Adjust the A-CH R-Y gain of composite signal and the S input signal.

RV115(B6): A CPST & SEP B-Y GAIN control
Adjust the A-CH composite signal and the S input B-Y gain.

RV116(C11): A INT BURST LEVEL control
Adjust the internal generation burst level when the A-CH is no signal.

RV117(D6): A CPNT Y GAIN control
Adjust the A-CH Y gain of component input.

RV118(C5): A CPNT R-Y GAIN control
Adjust the A-CH R-Y gain of component input.

RV119(B5): A CPNT B-Y GAIN control
Adjust the A-CH B-Y gain of the component input.

RV120(C4): A R-Y DELAY volume
Adjust the A-ch R-Y delay value.

RV121(D3): A Y DC control
Adjust the A-CH Y pedestal DC of the A/D converter.

RV122(C3): A R-Y DC control
Adjust the A-CH R-Y DC of the A/D converter.

RV123(B3): A B-Y DC control
Adjust the A-CH B-Y DC of the A/D converter.

RV124(D4): A Y (when RGB/RGBS is input) DC control
Adjust the Y pedestal DC value of the A-ch A/D converter when the RGB/RGBS is input.

RV125(C4): A B-Y DELAY volume
Adjust the A-ch B-Y delay value.

RV131(A7): A W HD PHASE control
Adjust the A-CH H timing of the memory writing.

RV201(H12): B CPST Y GAIN control
Ajust the B-CH Y gain of the composite input.

RV202(H12): B CPST C GAIN control
Adjust the B-CH chroma level of the composite input.

RV203(G11): B APC LOCK control
Adjust the B-CH burst lock of the digital Y/C separater clock.

RV211(J8): B SEP Y GAIN control
Adjust the B-CH Y gain of the S input signal.

RV212(K9): B SEP C GAIN control
Adjust the B-CH chroma gain of the S input signal.

RV213(K9): B CPST & SEP HUE control
Perform the HUE adjustment of the B-CH composite signal and the S input signal.

RV214(K6): B CPST & SEP R-Y GAIN control
Adjust the B-CH R-Y gain of the composite signal and the S input signal.

RV215(K6): B CPST & SEP B-Y GAIN control
Adjust the B-CH B-Y gain of the composite signal and the S input signal.

RV216(K11): B INT BURST LEVEL control
Adjust the internal genaration burst level when the B-CH is no input signal.

RV217(J6): B CPNT Y GAIN control
Adjust the B-CH Y gain of the component input signal.

RV218(K5): B CPNT R-Y GAIN control
Adjust the B-CH R-Y gain of the component input signal.

RV219(K5): B CPNT B-Y GAIN control
Adjust the B-CH B-Y gain of the component input signal.

RV220(L4): B R-Y DELAY volume
Adjust the B-ch R-Y delay value.

RV221(J3): B Y DC control
Adjust the B-CH Y pedestal DC of the A/D converter.

RV222(K3): B R-Y DC control
Adjust the B-CH R-Y DC of the A/D converter.

RV223(K3): B B-Y DC control
Adjust the B-CH B-Y DC of the A/D converter.

RV224(J4): B Y (when RGB/RGBS is input) DC control
Adjust the Y pedestal DC value of the B-ch A/D converter when the RGB/RGBS is input.

RV225(K4): B B-Y DELAY volume
Adjust the B-ch B-Y delay value.

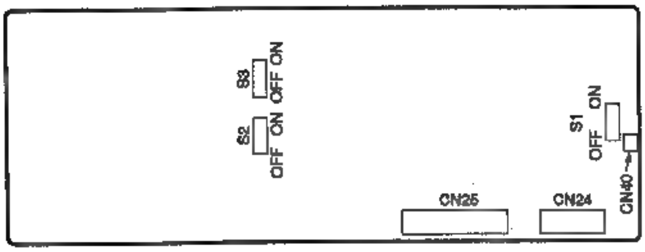
RV231(L4): B W HD PHASE control
Adjust the B-CH H timing of the memory writing.

Switch

S1(D14): VIDEO INPUT1
S2(F14): VIDEO INPUT2
S3(G14): VIDEO INPUT3
(Input signal format selection) switch
Select the format of the signal for connecting to the VIDEO INPUTS connectors 1 through 3.
COMPOSITE: composite video signal
Y/C: Y/C video signal
COMPONENT:component video signal
When the unit is shipped, all of the switches are set to the COMPOSITE position.

S4(J14): VIDEO INPUT4
(Input signal format selection) switch
Select the format of the signal for connecting to the VIDEO INPUT connector 4.
Y/R-Y/B-Y: component video signal
RGB: RGB signal with sync to G
RGBS: RGB signal without sync to G
When the unit is shipped, this switch is set to the Y/R-Y/B-Y position.

CN-981 BOARD (A side)


S3
OFF ON
S2
OFF ON
S1
OFF ON
CN25
CN24
CN40

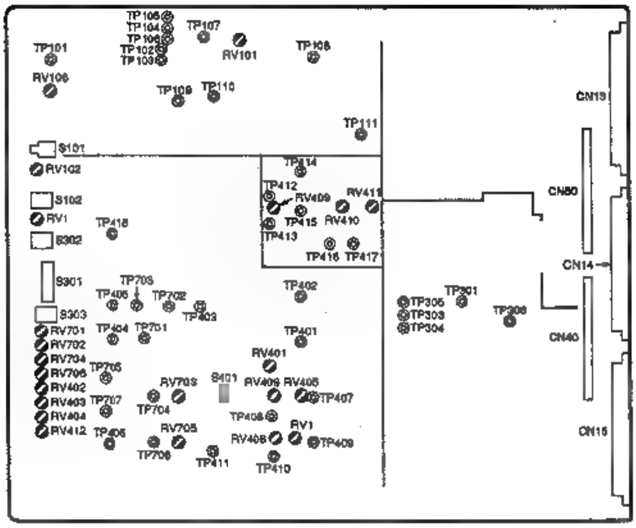
Switch

S1(M3): 75Ω terminated switch
This switch is GEN LOCK INPUT 75Ω terminated switch.
When the unit is shipped, this switch is set to the ON position.

S2(E3): 75Ω terminated switch
This switch is DSK VIDEO INPUT 75Ω terminated switch.
When the unit is shipped, this switch is set to the ON position.

S3(E2): 75Ω terminated switch
This switch is DSK KEY INPUT 75Ω terminated switch.
When the unit is shipped, this switch is set to the ON position.

DA-79/P BOARD (A side)


TP105
TP104
TP106
TP102
TP103
TP107
RV101
TP108
TP101
RV106
TP109
TP110
TP111
S101
RV102
S102
RV1
TP418
S302
TP414
TP412
RV409
RV411
TP415
RV410
TP413
TP416
TP417
S301
TP703
TP405
TP702
TP403
S303
TP402
RV701
RV702
RV704
RV706
RV402
RV403
RV404
RV412
TP404
TP701
TP401
RV401
TP705
RV703
S401
RV409
RV405
TP407
TP707
TP704
TP408
RV1
RV705
RV408
TP409
TP406
TP706
TP411
TP410
TP305
TP303
TP304
TP301
TP306
CN13
CN50
CN14
CN40
CN15

Indicater

D105(D14): GEN LOCK IN indicater (orange)
This indicator shows if the external synchronizing signal (the black burst signal) is input to the GEN LOCK IN connector on the rear panel.
ON (Orange light): GEN LOCK mode lights red when the external synchronizing signal (the black burst signal) is input to the GEN LOCK IN connecotor on the rear panel.
The synchronizing signal generator of this unit synchronizes to external synchronizing signal automatically.
OFF (light off): Lights off (INTERNAL mode) when the external synchronizing signal (the black burst signal) is not input to the GEN LOCK IN connector on the rear panel.
The synchronizing signal generator of this unit is the internal oscillator.

Volume

RV101(A10): INT SC FREQUENCY control
Adjust the SC frequency when the synchronizing signal generator on this board is the internal oscillator.

RV102(D14): GEN LOCK SC PHASE FINE control
Perform the fine adjustment of the SC phase when the external synchronization.

RV103(F14): GEN LOCK H PHASE FINE control
Perform the fine adjutment of the H phase when external synchronization.

RV106(C14): INT SC PHASE control
Adjust the SC phase when the synchronizing signal generator or this board is the internal oscillator.

RV401(J19): PGM OUT(COMPOSITE,Y/C) CHROMA GAIN control
Adjust the chroma gain value of the PGM OUT (COMPOSITE, Y/C).
In fact the volume is matched by level of the R-Y axis.

RV402(K14): PGM OUT(COMPOSITE) GAIN control
Adjust the gain value of the PGM OUT(COMPOSITE).
In fact the volume is matched by the luminance level.

RV403(K14): PGM OUT(Y/C)Y GAIN control
Adjust the gain value of the PGM OUT (Y/C) luminance signal(Y).

RV404(L14): PGM OUT(Y/C)C GAIN control
Adjust the gain value of the PGM OUT(Y/C) chroma signal(C).

RV405(K9): PGM OUT (COMPOSITE,Y/C) BURST BALANCE control
Adjust so that the burst level of every PGM OUT line (COMPOSITE,Y/C) is same level. (for EK)

RV406(L9): PGM OUT(COMPOSITE,Y/C)SUB CARRIER LEAK BALANCE(R-Y) control
Adjust the sub carrier balance of the PGM OUT(COMPOSITE,Y/C) encoder R-Y axis.

RV407(L9): PGM OUT(COMPOSITE,Y/C) B-Y AXIS GAIN control
Adjust the gain value of the PGM OUT (COMPOSITE,Y/C) encoder B-Y axis.

RV408(L9): PGM OUT(COMPOSITE,Y/C)SUB CARRIER LEAK BALANCE(B-Y) control
Adjust the sub carrier balance of the PGM OUT (COMPOSITE,Y/C) encoder B-Y axis.

RV409(E9): ENCODER MODURATION AXIS control
Adjust so that the moduration are axes (the R-Y axis and the B-Y axis) are crossed prependicularly by encoding the PGM OUT (COMPOSITE, Y/C) and B.B OUT.

RV410(E8): PGM OUT(COMPONENT) SYNC LEVEL control
Adjust the sync level of the PGM OUT (COMPONENT COMPOSITE, Y/C) Y signal.

RV411(E7): PGM OUT(COMPOSITE,Y/C)BURST LEVEL control
Adjust the burst level of the PGM OUT (COMPOSITE,Y/C).

RV412(L14): B.B OUT GAIN control
Adjust the gain value of the B.B OUT.
In fact this control is matched by burst level.

RV701(H14): KEY OUT GAIN control
Adjust the gain value of the KEY OUT.

RV702(J14): PGM OUT(COMPONENT)Y GAIN control
Adjust the gain value of the PGM OUT(COMPONENT) Y signal.

RV703(K12): PGM OUT(COMPONENT)R-Y DELAY control
Adjust the delay value of the PGM OUT (COMPONENT) Y signal corresponding to the R-Y signal.

RV704(J14): PGM OUT (COMPONENT)R-Y GAIN control
Adjust the gain value of the PGM OUT(COMPONENT) R-Y signal.

RV705(L12): PGM OUT(COMPONENT)B-Y DELAY control
Adjust the delay value of the PGM OUT(COMPONENT) B-Y signal corresponding to Y signal.

RV706(K14): PGM OUT(COMPONENT)B-Y GAIN control
Adjust the gain value of the PGM OUT(COMPONENT) B-Y signal.

Switch

S101(D14): GEN LOCK SC PHASE COARSE (0°/180°)switch
Change the setting reverses the external sync SC phase by about 180°.
When the unit is shipped, this switch is set to the "0°" position.

S102(E14): GEN LOCK H PHASE COARSE ADJ. switch
Perform the tentative adjustment of external sync H phase.
The H phase can be changed in sixteen steps with units of about 280ns.
When the unit is shipped, this switch is set to the 7 (for UC) or 6 (for EK) position.

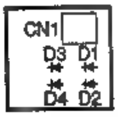
S301(G14): DSK VIDEO FORMAT SELECT switch
This switch can be changed to match the format of signal which is connected to the DSK VIDEO IN connector.
COMPOSITE: composite video signal
Y/R-Y/B-Y: luminance Y signal and color difference signal(R-Y/B-Y)
R/G/B: RGB signal
When the unit is shipped, this switch is set to the R/G/B position.

S302(F14): DSK EXT KEY DELAY ADJ.switch
Adjust the delay value of the DSK KEY IN corresponding to the DSK VIDEO IN.
The delay value can be changed in sixteen steps with units of about 70ns.
When the unit is shipped, this switch is set to the "8" position.

S303(H14): KEY OUT DELAY ADJ. switch
Adjust the delay value of the KEY OUT corresponding to the PGM OUT.
The delay value can be changed in sixteen steps with units of about 70ns.
When the unit is shipped, this switch is set to the "7" position.

S401(K10): LINE ALT switch
Selects whether to turn on or off the LINE ALT.
When the unit is shipped, this switch is set to the OFF(for UC) or ON(for EK) position.

LE-55 BOARD (A side)


CN1
D3
D1
D4
D2

Indicator

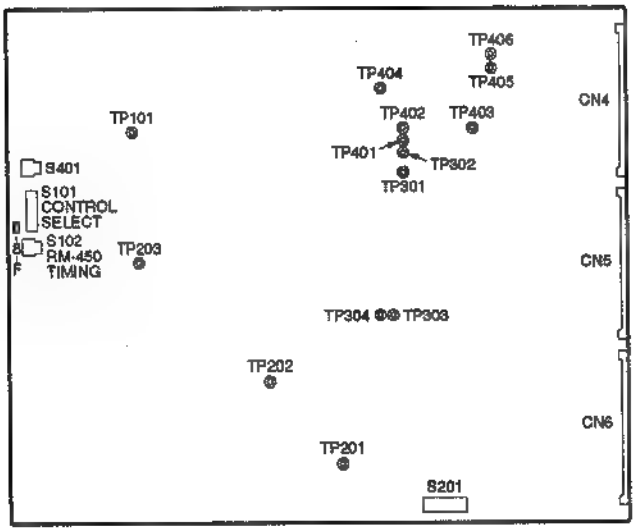
D1: POWER indicator (Yellow)
Lights when the Power is turned on.

D2: POWER indicator (Yellow)
Lights when the Power is turned on.

D3: POWER indicator (Yellow)
Lights when the Power is turned on.

D4: POWER indicator (Yellow)
Lights when the Power is turned on.

SY-199/P BOARD (A side)


TP406
TP404
TP405
CN4
TP101
TP402
TP403
TP401
TP302
S401
TP301
S101
CONTROL
SELECT
S102
RM-450
TIMING
8
F
TP203
CN5
TP304
TP303
TP202
CN6
TP201
S201

Switch

S101(E14): SELECT EDITING CONTORL UNIT switch
Select the editing control unit.(RM-450, BVE-600 and PVE-500)
When the unit is shipped, the switch is set to the "PVE-500" posion.

S102(F14): FREEZE TIMING switch
Adjust the freeze point, if DFS-500 with RM-450.
When the unit is shipped, the switch is set to the "8" position.

S201-1(M4): FREEZE switch (When changing the cross point)
ON:2 Frames OFF:0 Frame
When the unit is shipped, the switch is set to the ON position.

S201-2(M4): SET UP switch
ON:7.5% OFF: 0%
When the unit is shipped, the switch is set to the OFF position.

S201-3(M4): COLOR-MATTE COMPENSATION switch
ON:Illegal compensation
OFF:Limit compensation
When the unit is shipped, the switch is set to the OFF position.

S201-4(M4): FIELD FREEZE switch
ON:Odd Field OFF:Even Field
When the unit is shipped, the switch is set to the OFF position.

NOTE1 If the input signal ■ asynchronous, S201-1 is set definitely to ON positon.

NOTE2 If the editing control unit is BVE-600, S201-4 is set definitely to OFF positon.

S401(D14): TITLE EXT KEY DELAY switch
Adjust the delay value of the TITLE (EXT KEY).
When the unit is shipped, this switch is set to the 8 position.

2-13. NOTES ON SPARE PARTS

2-13-1. Notes on Spare Parts

(1) Safety Related Cmponents Warning

Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation.

Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts

Spare parts supplied from Sony Parts Center may not always be identical with the parts actually in use due to accommodating the improved parts and/or engineering changes or standardization of genuine parts.

This manual's exploded views and electrical spare parts list indicate the part numbers of the standardized genuine parts at present.

(3) Stock of Part

Parts marked with "o" in the SP(Supply code)column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional time for delivery.

(4) Units for Capacitors, Inductors and resistors

The following units may be assumed in schmatic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitor: μ F
Inductor : μ H
Resistor : Ω

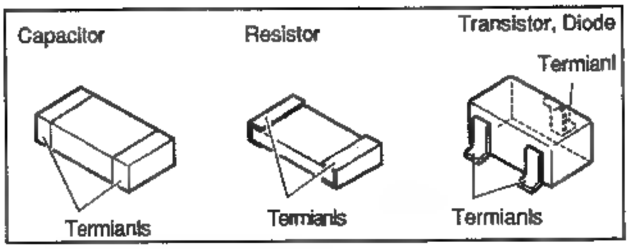
2-13-2. Replacement of Chip Parts

Required Tools

Soldering iron : 20W
If possible, use a soldering-iron tip heatcontroller set to 270 ± 10°C.
Braided wire : Solder Taul or equivalent
Sony part No. 7-641-300-81
Solder : 0.6mm dia. is recommended.
Tweezers

Soldering Conditions

Soldering iron temperature : 270 ± 10°C
Soldering time : Less than 2 seconds per pin



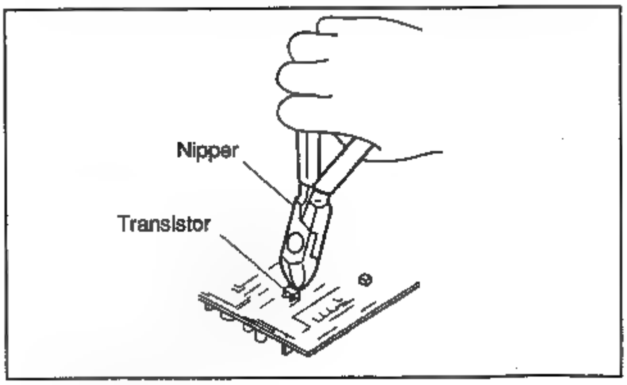
Replacement of Resistor and Capacitor

1. Place the soldering-iron tip onto the chip part and heat it up until the solder is melted. When the solder is melted, slide the chip part aside.
2. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering position.
3. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
4. Place new chip part in the desired position and solder both ends.

NOTE Do not use a chip part again once it has been removed.

Replacement of Transistors and Diodes

1. Cut the terminals of the chip part with nippers.
2. Remove the cut leads with soldering iron as above.
3. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering positions.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place new chip part in the desired position and solder the terminals.



Replacement of ICs

1. Using the braided wire, "SOLDER TAUL" (Sony Part No. 7-641-300-81), remove the solder around the pins of the IC-chip to be removed.
2. While heating up the pins, remove the pins one by one using sharp-pointed tweezers.
3. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering position.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place new chip part in the desired position and solder the pins.

2-13-3. Replacement of Backup Battery

DFS-300/P has a backup battery (Nickel-Cadmium Battery) on the SY-199/P board.
This backup battery can register the settings on the control panel (snap shot) and store the effets created by user (user program).
Backup Battery: Nickel-Cadmium Battery
Sony Parts No. 1-528-598-11

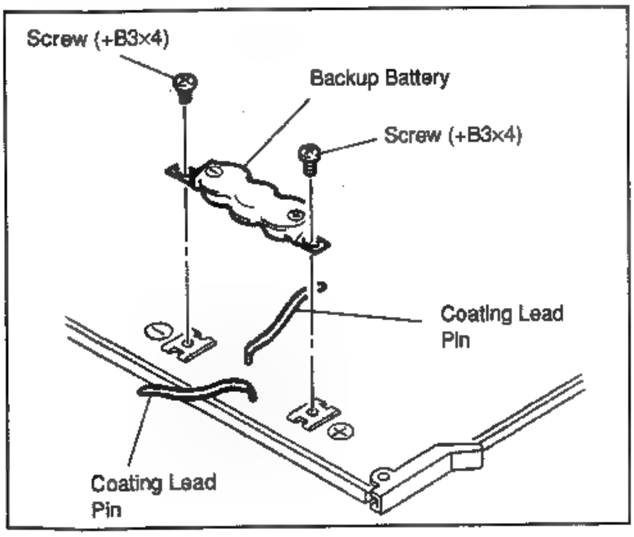
NOTE This backup battery is charged automatically on normal operation for about eight hour. If it is not used for long time (about more than one month), the backup battery consumes. As a resalt, the following setting (1) through (4) and data is disappeared, and they are initialized. At that time, charge the backup battery.

(1) Resume function (The setting recovery when turning the power OFF.)
(2) Data of user program
(3) Data of snap shot
(4) Direct pattern assign function

If the unit serves for about five year, the backup battery should be replaced. At this time, the following setting (1) through (4) and data is disappeard, and they are initialized. After replacement, charge the backup battery.

Replacement Procedure

① Remove the one side of the coating lead pin.
② Remove the two screws (+B3×4) and then replace a new one.
③ After replacement, tighten the two screws (+B3×4).



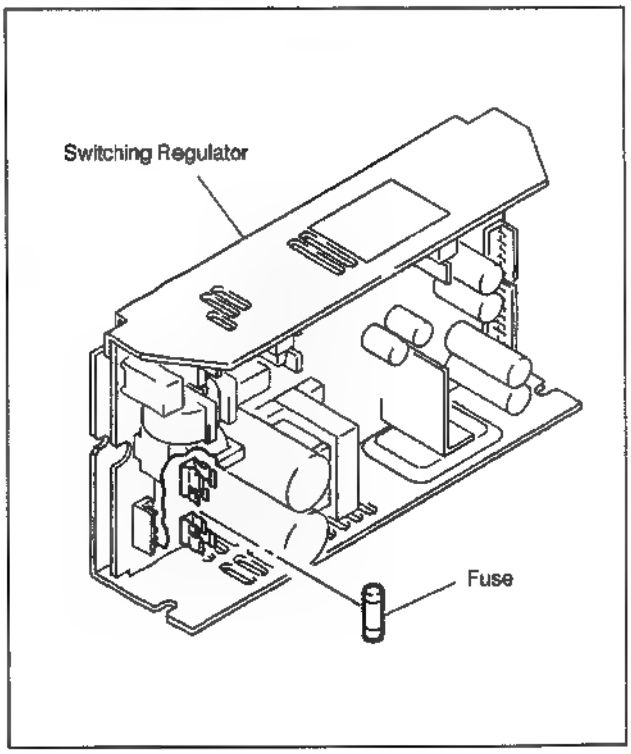
2-13-4. Replacement of Fuse

The fuse is mounted on the Switching Regurator. This fuse melted when the too much electric current flows by unusual instrument.
Before replacing the fuse, check the trouble of fuse.

Replacement Procedure

Before replacement of Fuse, take out the cause of short for unit.

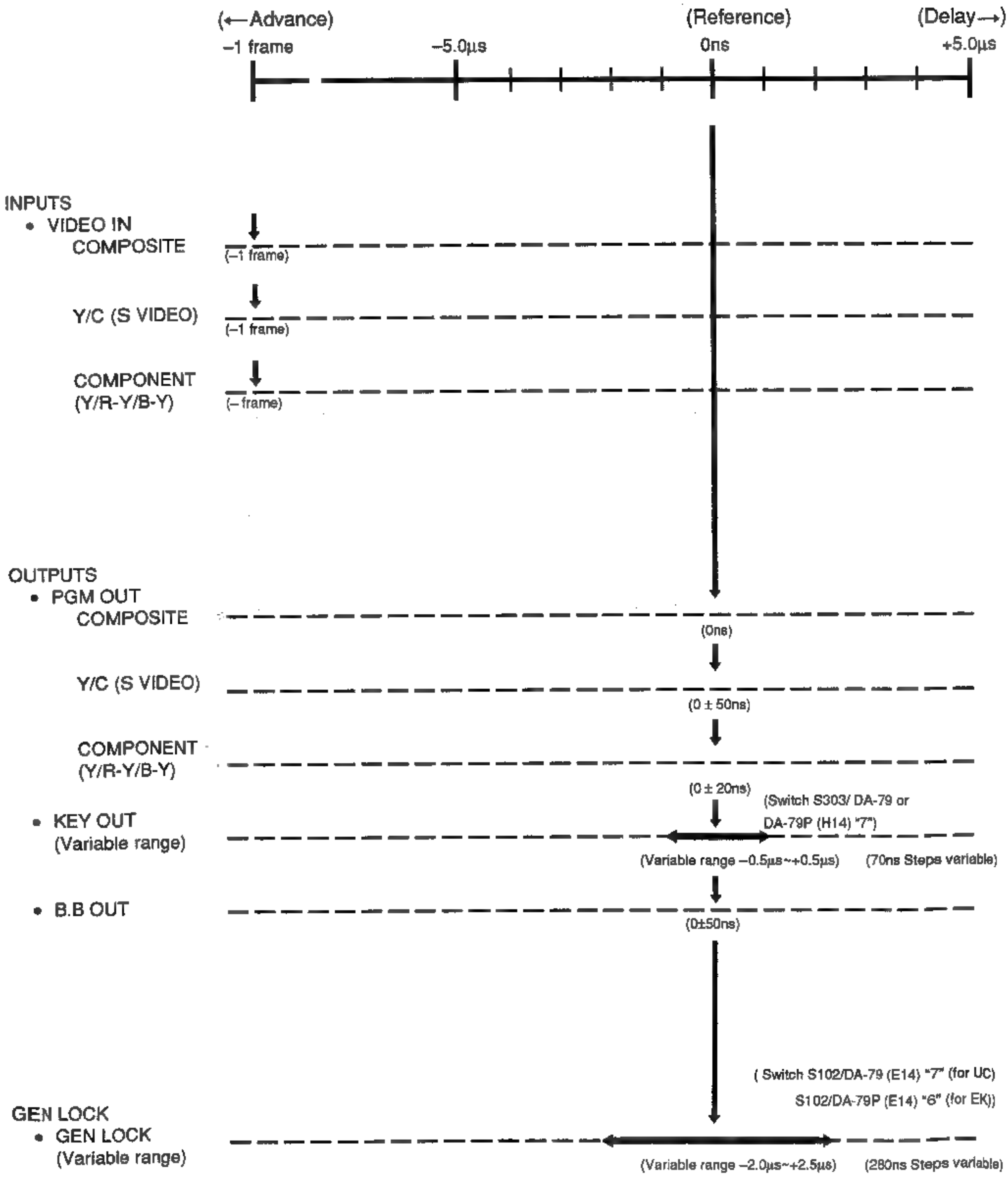
① Remove the Front Panel. (Refer to "FRONT PANEL" of Section 2-1. REMOVAL OF CABINET.)
② Remove the Upper Chassis. (Refer to "UPPER CHASSIS" of Section 2-1. REMOVAL OF CABINET.)
③ Remove the Switching Regulator. (Refer to Section 2-5-2. Switching Regulator Removal.)
④ Remove the fuse from the holder on the Switching Regulator.
⑤ Replace a new fuse.
Fuse: FUSE (H.B.C)
Sony part No.: 1-576-233-41



2-14. TIMING CHART

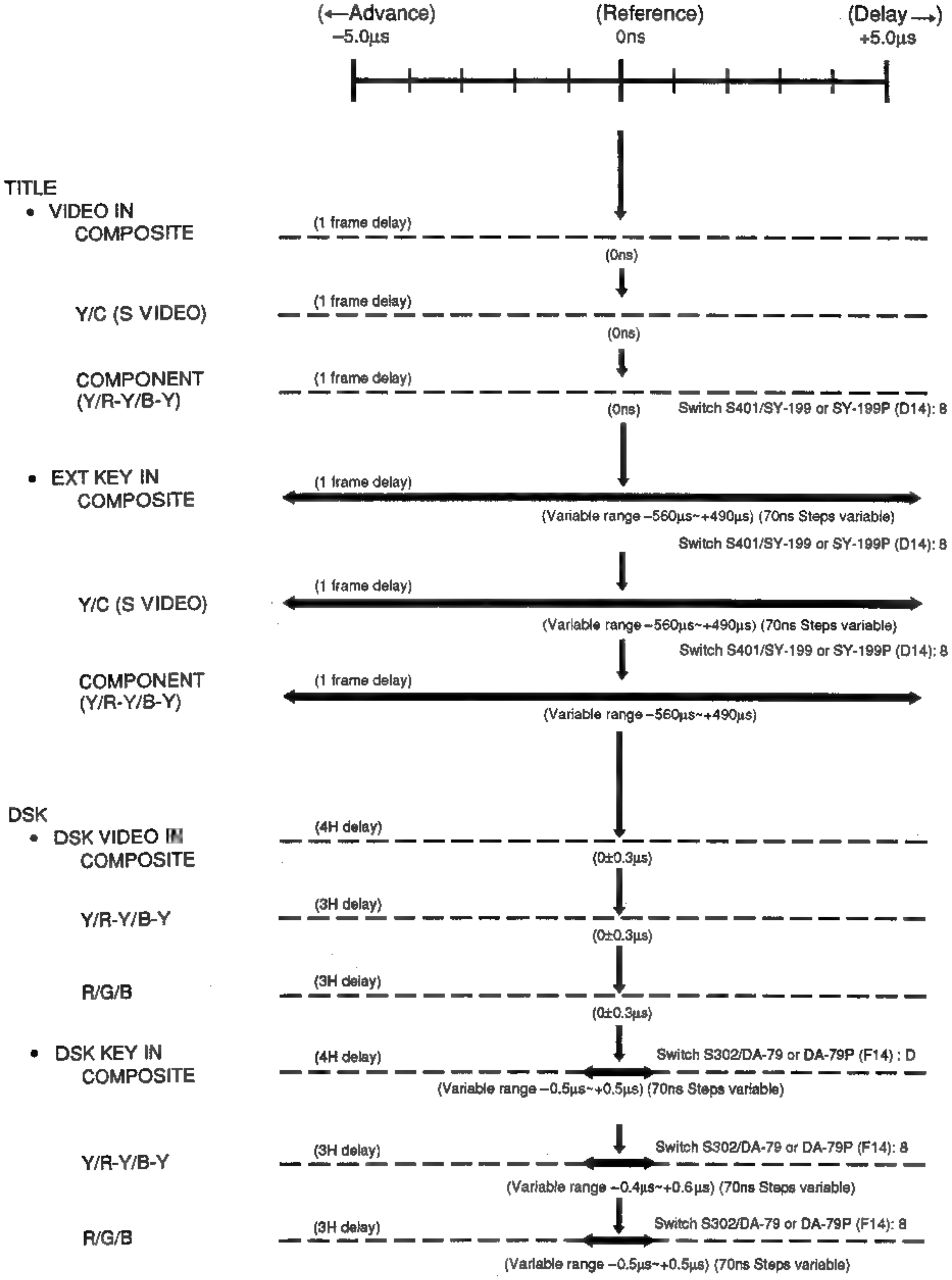
2-14-1. System Timing

REFERENCE: PGM OUT (COMPOSITE)


(←Advance)
(Reference)
(Delay→)
–1 frame
–5.0μs
0ns
+5.0μs
INPUTS
• VIDEO IN
COMPOSITE
(–1 frame)
Y/C (S VIDEO)
(–1 frame)
COMPONENT
(Y/R-Y/B-Y)
(–frame)
OUTPUTS
• PGM OUT
COMPOSITE
(0ns)
Y/C (S VIDEO)
(0 ± 50ns)
COMPONENT
(Y/R-Y/B-Y)
(0 ± 20ns)
(Switch S303/ DA-79 or DA-79P (H14) "7")
• KEY OUT
(Variable range)
(Variable range –0.5μs~+0.5μs)
(70ns Steps variable)
• B.B OUT
(0±50ns)
(Switch S102/DA-79 (E14) "7" (for UC)
S102/DA-79P (E14) "6" (for EK))
GEN LOCK
• GEN LOCK
(Variable range)
(Variable range –2.0μs~+2.5μs)
(280ns Steps variable)

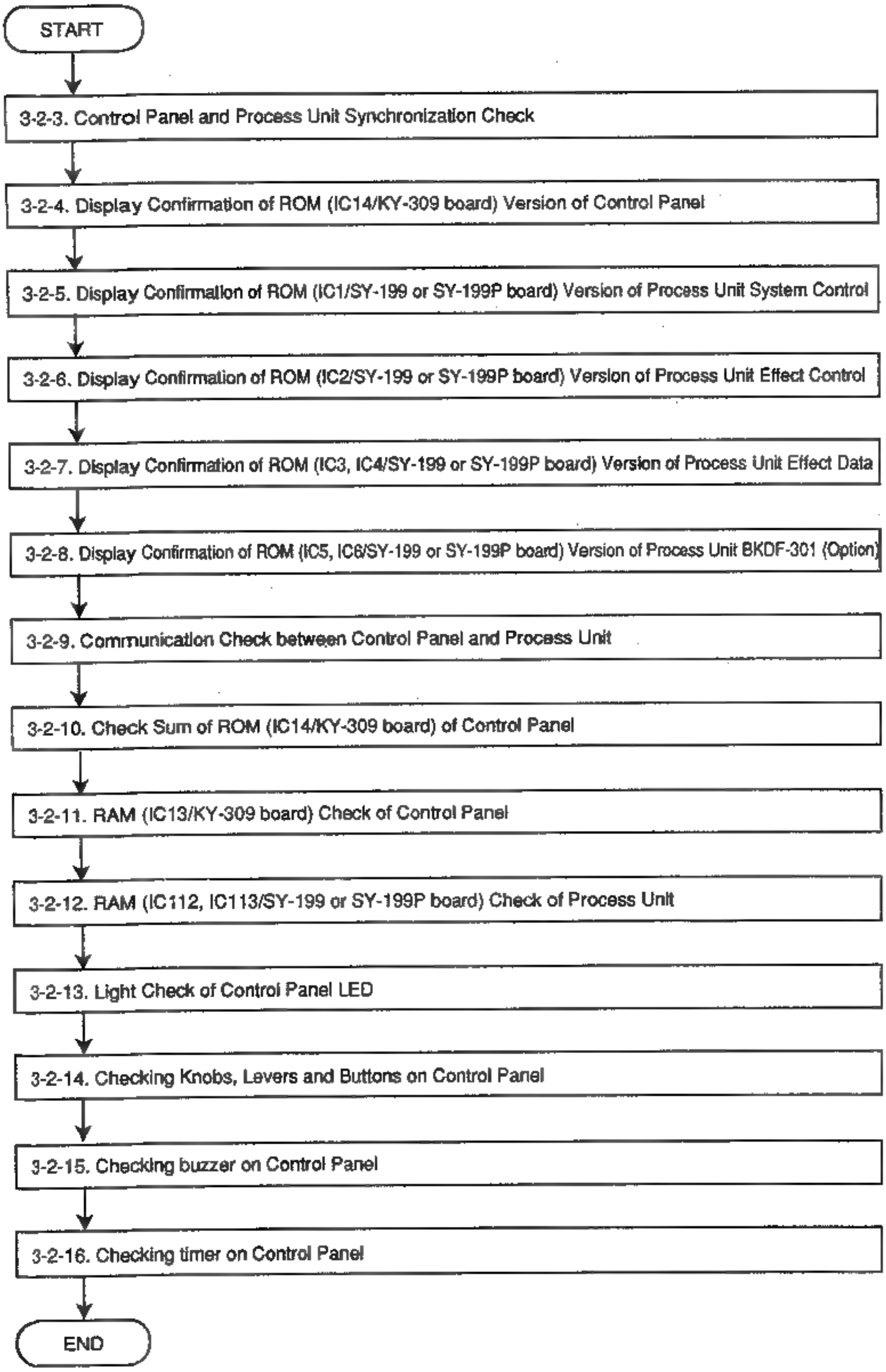
2-14-2. Timing of TITLE and DSK (Video Phase)

Test point: PGM OUT (COMPOSITE)


(←Advance)
−5.0μs
(Reference)
0ns
(Delay→)
+5.0μs
TITLE
• VIDEO IN
COMPOSITE
(1 frame delay)
(0ns)
Y/C (S VIDEO)
(1 frame delay)
(0ns)
COMPONENT
(Y/R-Y/B-Y)
(1 frame delay)
(0ns)
Switch S401/SY-199 or SY-199P (D14): 8
• EXT KEY IN
COMPOSITE
(1 frame delay)
(Variable range −560μs~+490μs) (70ns Steps variable)
Switch S401/SY-199 or SY-199P (D14): 8
Y/C (S VIDEO)
(1 frame delay)
(Variable range −560μs~+490μs) (70ns Steps variable)
Switch S401/SY-199 or SY-199P (D14): 8
COMPONENT
(Y/R-Y/B-Y)
(1 frame delay)
(Variable range −560μs~+490μs)
DSK
• DSK VIDEO IN
COMPOSITE
(4H delay)
(0±0.3μs)
Y/R-Y/B-Y
(3H delay)
(0±0.3μs)
R/G/B
(3H delay)
(0±0.3μs)
• DSK KEY IN
COMPOSITE
(4H delay)
Switch S302/DA-79 or DA-79P (F14) : D
(Variable range −0.5μs~+0.5μs) (70ns Steps variable)
Y/R-Y/B-Y
(3H delay)
Switch S302/DA-79 or DA-79P (F14): 8
(Variable range −0.4μs~+0.6μs) (70ns Steps variable)
R/G/B
(3H delay)
Switch S302/DA-79 or DA-79P (F14): 8
(Variable range −0.5μs~+0.5μs) (70ns Steps variable)

SECTION 3
DIAGNOSTICS

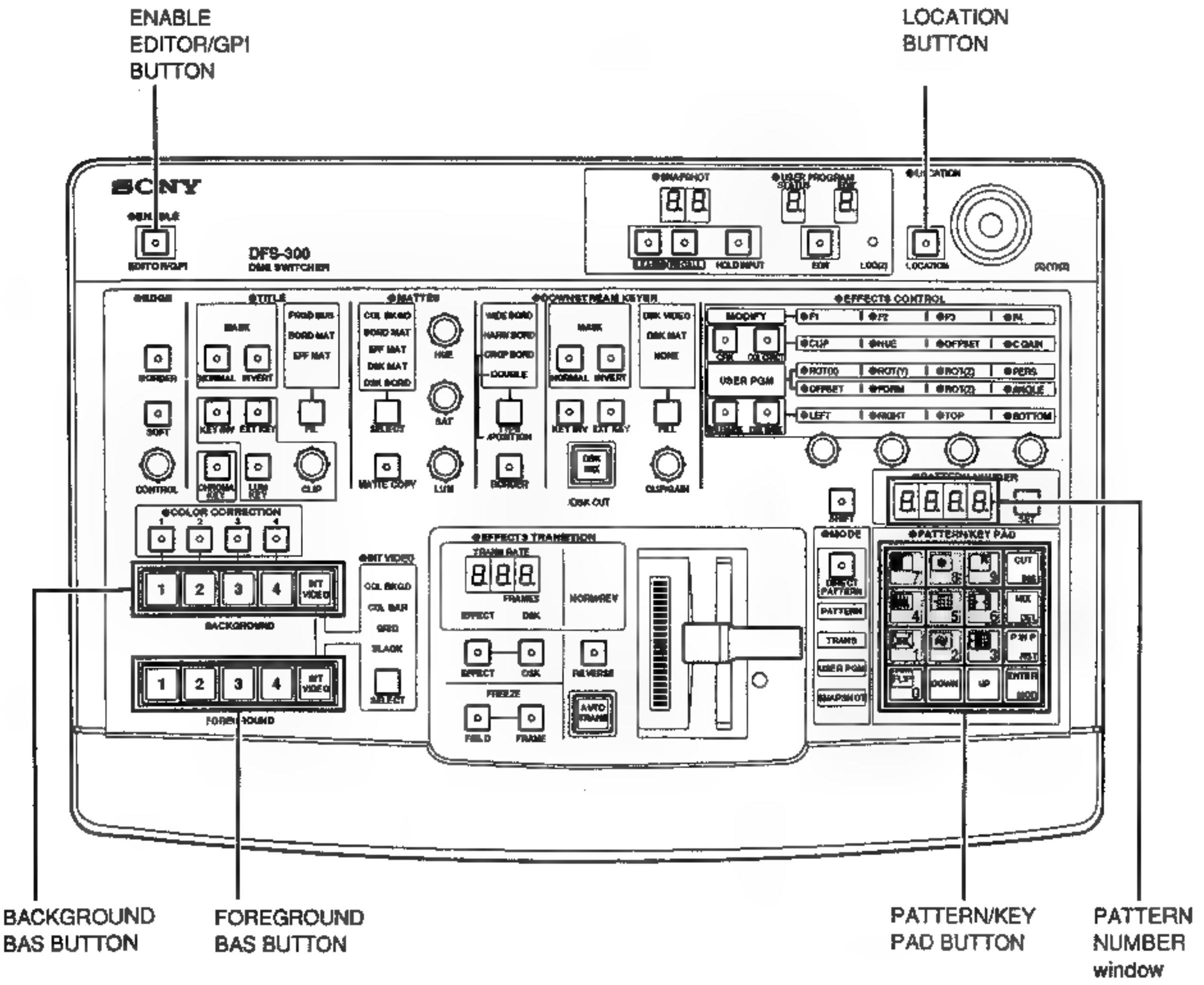
3-1. FLOW CHART


START
3-2-3. Control Panel and Process Unit Synchronization Check
3-2-4. Display Confirmation of ROM (IC14/KY-309 board) Version of Control Panel
3-2-5. Display Confirmation of ROM (IC1/SY-199 or SY-199P board) Version of Process Unit System Control
3-2-6. Display Confirmation of ROM (IC2/SY-199 or SY-199P board) Version of Process Unit Effect Control
3-2-7. Display Confirmation of ROM (IC3, IC4/SY-199 or SY-199P board) Version of Process Unit Effect Data
3-2-8. Display Confirmation of ROM (IC5, IC6/SY-199 or SY-199P board) Version of Process Unit BKDF-301 (Option)
3-2-9. Communication Check between Control Panel and Process Unit
3-2-10. Check Sum of ROM (IC14/KY-309 board) of Control Panel
3-2-11. RAM (IC13/KY-309 board) Check of Control Panel
3-2-12. RAM (IC112, IC113/SY-199 or SY-199P board) Check of Process Unit
3-2-13. Light Check of Control Panel LED
3-2-14. Checking Knobs, Levers and Buttons on Control Panel
3-2-15. Checking buzzer on Control Panel
3-2-16. Checking timer on Control Panel
END

3-2. CHECK MODE

If any error occurs at power on or during normal operation, the error number is displayed in the PATTERN NUMBER window.

Buttons and displays that are referred in the following check procedures are labelled as shown below.


ENABLE
EDITOR/GPI
BUTTON
LOCATION
BUTTON
SONY
DFS-300
BACKGROUND
BAS BUTTON
FOREGROUND
BAS BUTTON
PATTERN/KEY
PAD BUTTON
PATTERN
NUMBER
window

3-2-1. Countermeasures for Error Messages

PATTERN NUMBER window	Operation	Cause of error	Countermeasure
Er01	During normal operation	The vertical sync signal is not being sent from main unit to the control panel. (The control panel works while synchronizing to the vertical sync signal that is supplied from main unit.)	Possible fault in the SY-199/P board, the DA-79/P board or the cable.
Er02	① At power on ② During diagnostic check	Fault in communications between the main unit and the control panel.	Possible fault in the SY-199/P board or the cable.
Er08	During diagnostic check	Abnormality in the knobs of the control panel.	Possible fault in the knobs on the control panel, the AD converter(IC15/KY-309 board) and the selector (IC16, IC17, IC18/KY-309 board).
Er10	① At power on ② During diagnostic check	Abnormal check sum in the control panel ROM (IC14) of the KY-309 board.	Replace the control panel ROM (IC14) of the KY-309 board.
Er20	① At power on ② During diagnostic check	Abnormality in the control panel RAM (IC13) of the KY-309 board.	Replace the control panel RAM (IC13) of the KY-309 board.
Er40	At power on	Abnormality in the RAMs (IC112, IC113) of the main unit (SY-199/P board).	Replace the RAMs (IC112, IC113) of the main unit (SY-199/P board).
Er80	During diagnostic check	Abnormality in the timer built into the CPU of the control panel.	Possible fault in the CPU (IC14/KY-309 board) of the control panel.
"FA" and pattern No. is displayed alternately (beep tones continue sounding).	During normal operation	Abnormality in the DC fan of the process unit.	Turn the power off and then check that the power supply harness of DC fan is broken or the connection is bad. When abnormality is not found, replace a new DC fan.

NOTE : If two or more errors occur at the same time, the sum of the various error numbers is displayed in hexadecimal.

3-2-2. Backup Memory Warnings

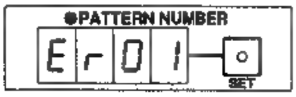
Backup memory (IC112, IC113/SY-199/P board) data is checked at power on. If abnormality is found, the memory is initialized automatically. At the same time, the warning and the pattern number are displayed alternatively in the PATTERN NUMBER window. If operating in the control panel as follows: pressing buttons, turning knobs, and moving the JOG lever and the FADER lever to clear the warning and return to the normal operation condition.

PATTERN NUMBER window	Meaning
bu01	The memory of the user program effect is faulty. It is initialized automatically.
bu02	The snap shot memory is faulty. It is initialized automatically.
bu04	The memory of the direct pattern assignment is faulty. It is initialized automatically.
bu10	The memory to recover (resume function) the default in power OFF is faulty. It is initialized automatically.

NOTE : If two or more abnormality occur at the same time, the sum of the various warning numbers isdisplayed in hexadecimal.

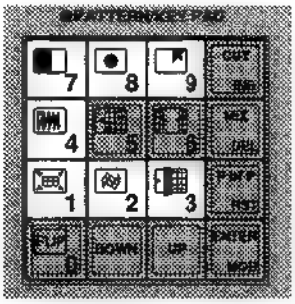
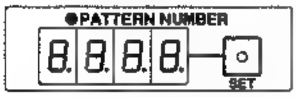
3-2-3. Control Panel and Process Unit Synchronization Check

The control panel works while synchronizing to the vertical sync signal that is supplied from the main unit.
The process unit checks all the time during operation that the vertical sync signal is being sent correctly to the control panel.

Execution method during operation	Confirmation item
It is checked all the time during operation.	• PATTERN NUMBER window  • If there is any abnormality, error is displayed.
Cause • Vertical sync signal is not sent from the main unit to the control panel correctly. (The control panel works while synchronizing to the vertical sync signal that is supplied from main unit.)	
Operator action • Possible fault in the SY-199/P board, the DA-79/P board or the cable.	

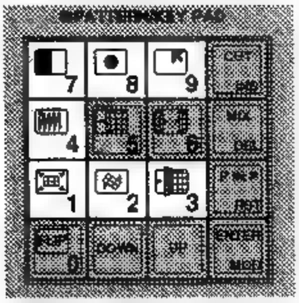
3-2-4. Display Confirmation of ROM (IC14/KY-309 board) Version of Control Panel

ROM (IC14) version of the KY-309 board is displayed.
It is confirmed whenever power is turned on.

Execution method during operation	Confirmation item
While pressing the BACKGROUND 1 and the FOREGROUND 1, press the LOCATION.	• KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)  ●PATTERN/KEY PAD 7 8 9 CUT 4 5 6 MIX 1 2 3 UP DOWN 0 • Check that the version number X.XX is displayed on the PATTERN NUMBER window. • At this time, all other LEDs light off.  • Press the ENTER on the KEY PAD button to restore normal operation.

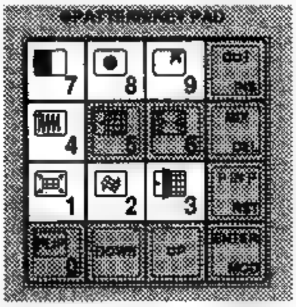
3-2-5. Display Confirmation of ROM (IC1/SY-199 or SY-199P board) Version of Process Unit System Control

ROM (IC1) version of the SY-199/P board is displayed.

Execution method during operation	Confirmation item
While pressing the BACKGROUND 1 and the FOREGROUND 2, press the LOCATION.	• KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)  7 8 9 4 5 6 1 2 3 0 DOWN UP ENTER • Check that the version number X.XX is displayed on the PATTERN NUMBER window. • At this time, all other LEDs light off. ●PATTERN NUMBER 8.8.8.8. SET • Press the ENTER on the KEY PAD button to restore normal operation.

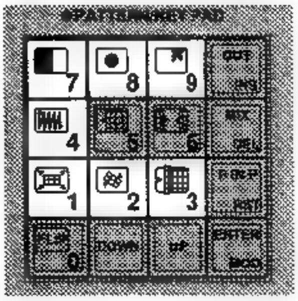
3-2-6. Display Confirmation of ROM (IC2/SY-199 or SY-199P board) Version of Process Unit Effect Control

ROM (IC2) version of the SY-199/P board is displayed.

Execution method during operation	Confirmation item
While pressing the BACKGROUND 1 and the FOREGROUND 3, press the LOCATION.	• KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)  7 8 9 4 5 6 1 2 3 0 DOWN UP ENTER • Check that the version number X.XX is displayed on the PATTERN NUMBER window. • At this time, all other LEDs light off. ●PATTERN NUMBER 8.8.8.8. SET • Press the ENTER on the KEY PAD button to restore normal operation.

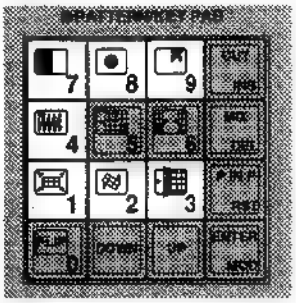
3-2-7. Display Confirmation of ROM (IC3, IC4/SY-199 or SY-199P board) Version of Process Unit Effect Data

ROM (IC3, IC4) version of the SY-199/P board is displayed.

Execution method during operation	Confirmation item
While pressing the BACKGROUND 1 and the FOREGROUND 4, press the LOCATION.	• KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)  ●PATTERN/KEY PAD 7 8 9 4 5 6 1 2 3 0 DOWN UP ENTER • Check that the version number X.XX is displayed on the PATTERN NUMBER window. • At this time, all other LEDs light off. ●PATTERN NUMBER 8.8.8.8. SET • Press the ENTER on the KEY PAD button to restore normal operation.

3-2-8. Display Confirmation of ROM (IC5, IC6/SY-199 or SY-199P board) Version of Process Unit BKDF-301 (Option)

ROM (IC5, IC6) version of the SY-199/P board is displayed.

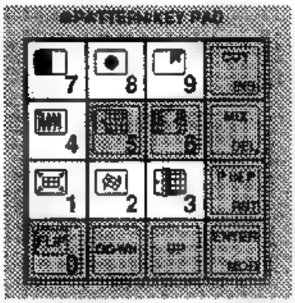
Execution method during operation	Confirmation item
While pressing the BACKGROUND 1 and the INT VIDEO of the FOREGROUND, press the LOCATION.	• KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)  ●PATTERN/KEY PAD 7 8 9 4 5 6 1 2 3 0 DOWN UP ENTER • Check that the version number X.XX is displayed on the PATTERN NUMBER window. • At this time, all other LEDs light off. ●PATTERN NUMBER 8.8.8.8. SET • Press the ENTER on the KEY PAD button to restore normal operation.

3-2-9. Communication Check between Control Panel and Process Unit

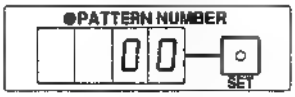
Communication between the control panel and process unit is checked.
In this check, the communication check command is sent from the control panel to the process unit.
Then, it is checked if a response command is returned within the specified time.
It is checked whenever power is turned on.

<table>
<tr><th>Execution method during operation</th><th>Confirmation item</th></tr>
<tr><td>While pressing the BACKGROUND 2 and the FOREGROUND 3, press the LOCATION.</td><td>

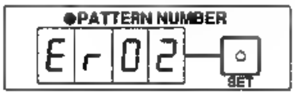
- KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)



- Check that the version number STATUS is displayed on the PATTERN NUMBER window.
- At this time, all other LEDs light off.



➡ Normal

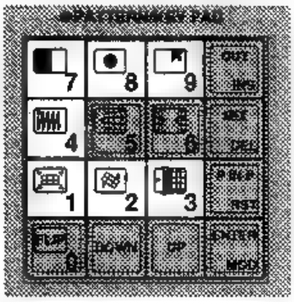


➡ Abnormal

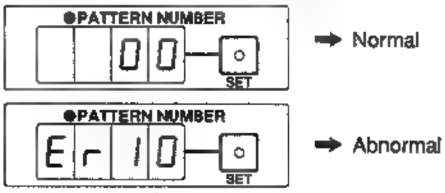
- Press the ENTER on the KEY PAD button to restore normal operation.
</td></tr>
<tr><td colspan="2">Cause
• Communication between the control panel and the process unit is not established correctly.</td></tr>
<tr><td colspan="2">Operator action
• Possible fault in the SY-199/P board, the cable, etc.</td></tr>
</table>

3-2-10. Check Sum of ROM (IC14/KY-309 board) of Control Panel

Check sum of KY-309 board ROM (IC14) is checked.
It is checked whenever power is turned on.

<table>
<tr><th>Execution method during operation</th><th>Confirmation item</th></tr>
<tr><td>While pressing the BACKGROUND 3 and the FOREGROUND 1, press the LOCATION.</td><td>• KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)


●PATTERN/KEY PAD
7
8
9
OUT
INS
4
5
6
SET
DEL
1
2
3
PREP
RST
FLIP
0
DOWN
UP
ENTER
MOD

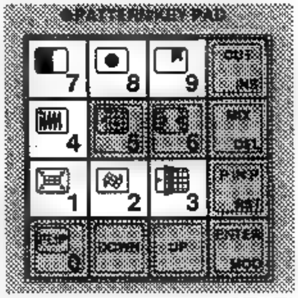
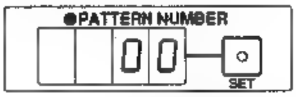
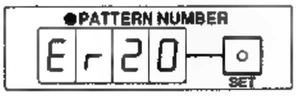
• Check that the version number STATUS is displayed on the PATTERN NUMBER window.
• At this time, all other LEDs light off.


●PATTERN NUMBER
00
SET
→ Normal
●PATTERN NUMBER
Er 10
SET
→ Abnormal

• Press the ENTER on KEY PAD button to restore normal operation.</td></tr>
<tr><td colspan="2">Cause
• Check sum of KY-309 board ROM (IC14) is abnormal.</td></tr>
<tr><td colspan="2">Operator action
• Replace the KY-309 board ROM (IC14).</td></tr>
</table>

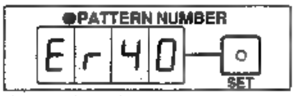
3-2-11. RAM (IC13/KY-309 board) Check of Control Panel

RAM (IC13) on the KY-309 board is checked.
It is checked whenever power is turned on.

Execution method during operation	Confirmation item
While pressing the BACKGROUND 3 and the FOREGROUND 2, press the LOCATION.	- KEY PAD buttons light in the shape of letter C. (buttons 1-4 and 7-9)  7 8 9 4 5 6 1 2 3 0 DOWN UP ENTER - Check that the version number STATUS is displayed on the PATTERN NUMBER window. - At this time, all other LEDs light off.  ➡ Normal  ➡ Abnormal - Press the ENTER on KEY PAD button to restore normal operation.
Cause - Parity of KY-309 board RAM (IC13) is abnormal.	
Operator action - Replace the KY-309 board RAM (IC13).	

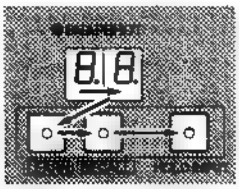
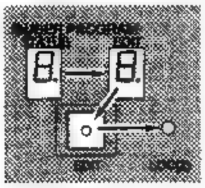
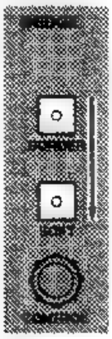
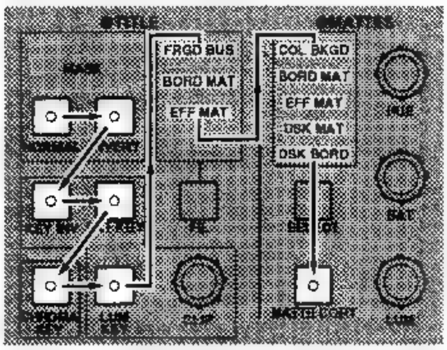
3-2-12. RAM (IC112, IC113/SY-199 or SY-199P board) Check of Process Unit

RAMs (IC112, IC113/SY-199 or SY-199P board) on the process unit is checked.
It is checked whenever power is turned on.

Execution method during operation	Confirmation item
	- PATTERN NUMBER window  - If there is any abnormality, error is displayed as shown above.
Cause - RAMs (IC112, IC113/SY-199 or SY-199P board) on the process unit is abnormal.	
Operator action - Replace the RAMs (IC112, IC113) on the process unit SY-199/P board.	

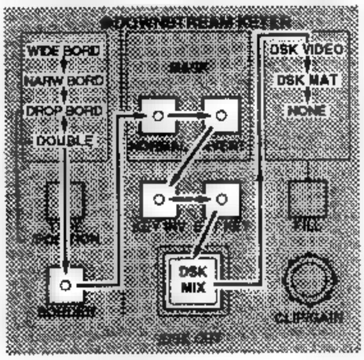
3-2-13. Light Check of Control Panel LED

Light all the LEDs on the control panel one by one sequentially.

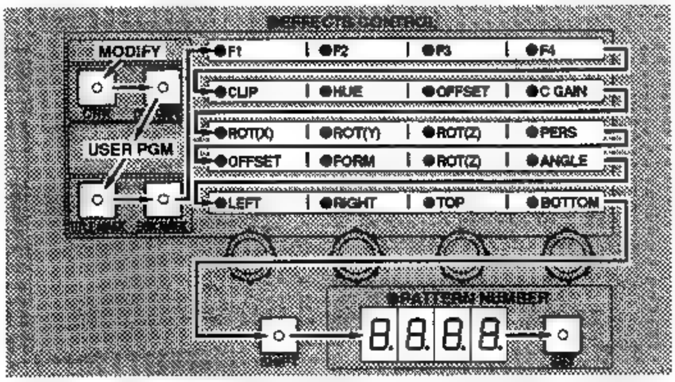
Execution method during operation	Confirmation item
While pressing the BACKGROUND 2 and the FOREGROUND 1, press the LOCATION. NOTE: (1) The LEDs lighting speed can be changed by F4 control on the EFFECT CONTROL block. Normal speed is 100%. The speed ranges from 50% to 200%. (2) When a button of a block is pressed, lighting jumps to the top of respective block.	LEDs light in order from top to bottom, left to right. ① EDITOR/GPI button (EDITOR/GPI button lights.) ② SNAPSHOT block  • Counter block test Left hand digit counts up from 0-9, then right hand digit counts up from 0-9. ③ USER PROGRAM block  ④ LOCATION block (LOCATION button lights.) ⑤ EDGE block  ⑥ TITLE block, MATTES block  FRGD BUS BORD MAT EFF MAT COL BKGD BORD MAT EFF MAT DSK MAT DSK BORD

<table>
<tr><th>Execution method during operation</th><th>Confirmation item</th></tr>
<tr><td></td><td>

⑦ DOWNSTREAM KEYER block

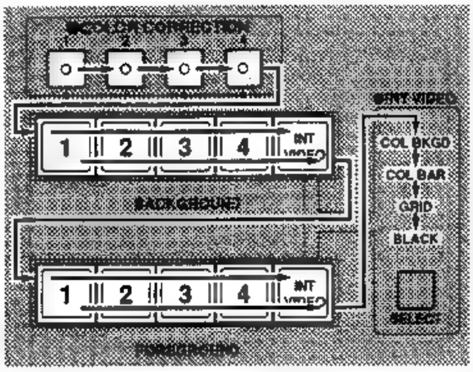

DOWNSTREAM KEYER
WIDE BORD
NARW BORD
DROP BORD
DOUBLE
DSK VIDEO
DSK MAT
NONE
NORMAL
DSK MIX
FILL
BORDER
CLIP/GAIN

⑧ EFFECTS CONTROL block, SHIFT button, PATTERN NUMBER block


EFFECTS CONTROL
MODIFY
F1
F2
F3
F4
CLIP
HUE
OFFSET
C GAIN
ROT(X)
ROT(Y)
ROT(Z)
PERS
OFFSET
FORM
ROT(Z)
ANGLE
USER PGM
LEFT
RIGHT
TOP
BOTTOM
PATTERN NUMBER
8.8.8.8.

- Counter block test
  Left most digit of the four counters counts up from 0-9, then the next right hand digit counts up from 0-9 in this order.

⑨ COLOR CORRECTION block, Primary Crosspoint Bus block

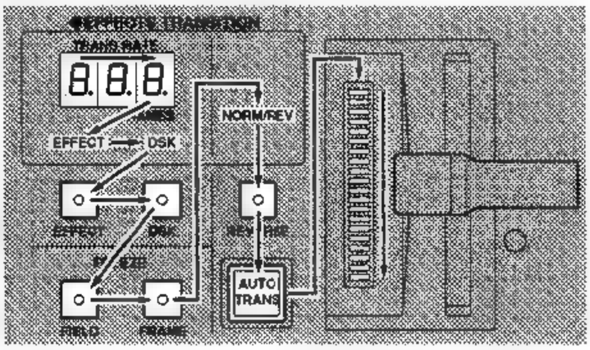

COLOR CORRECTION
1
2
3
4
INT VIDEO
BACKGROUND
COL BKGD
COL BAR
GRID
BLACK
SELECT
FOREGROUND

- BACKGROUND button test
  LEDs light from left to right first in red then in orange.
- FOREGROUND button test
  LEDs light from left to right first in red then in orange.

</td></tr>
</table>

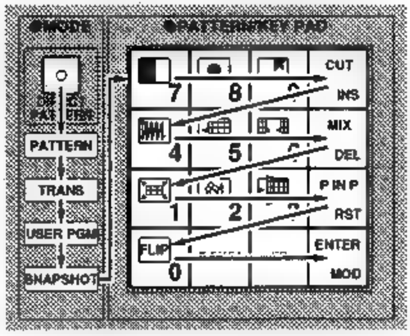
<table>
<tr><th>Execution method during operation</th><th>Confirmation item</th></tr>
<tr><td></td><td>

⑨ EFFECTS TRANSITION block


EFFECTS TRANSITION
TRANS RATE
EFFECT
DSK
NORM/REV
EFFECT
DSK
AUTO TRANS
FIELD
FRAME

- Counter block test
  Left most digit of the three counters counts up from 0-9, then the next right hand digit counts up from 0-9 in this order.

⑩ PATTERN/KEY PAD block


MODE
PATTERN/KEY PAD
PATTERN
TRANS
USER PGM
SNAPSHOT
7
8
CUT
INS
4
5
MIX
DEL
1
2
P IN P
RST
FLIP
0
ENTER
MOD

Confirm that the LEDs light in the order as shown above.
(buttons 0-9, CUT INS, MIX DEL, P IN P RST, DOWN, UP and ENTER)

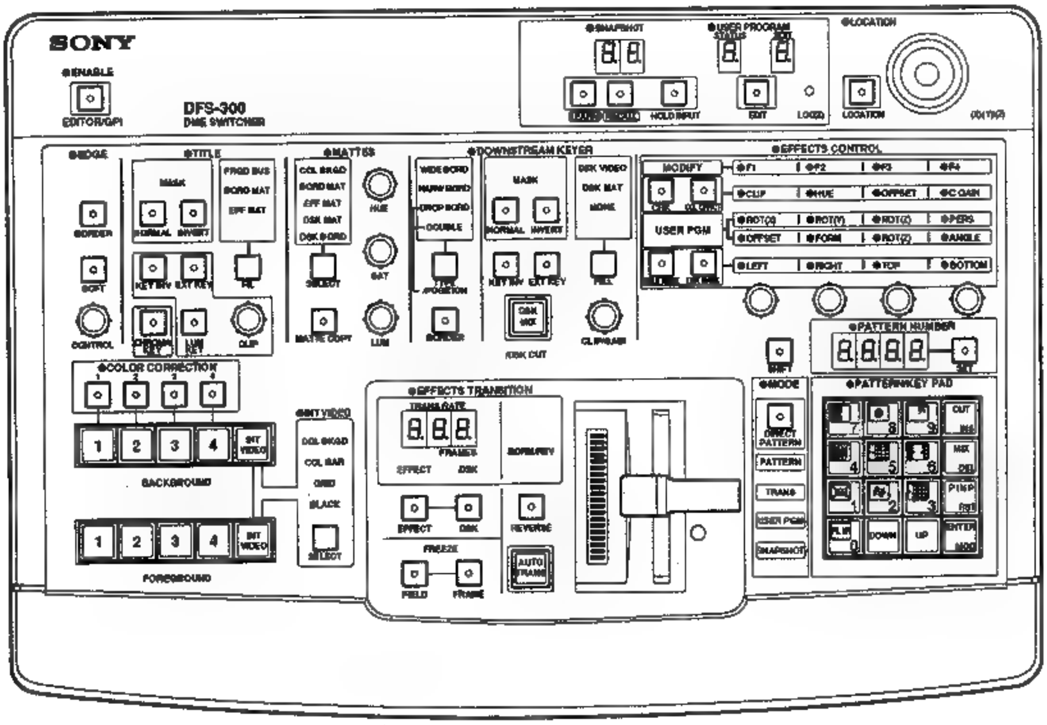
- Press the ENTER on the KEY PAD button to restore normal operation.

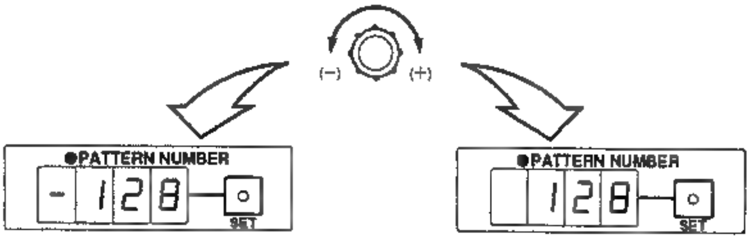
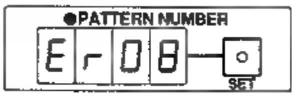
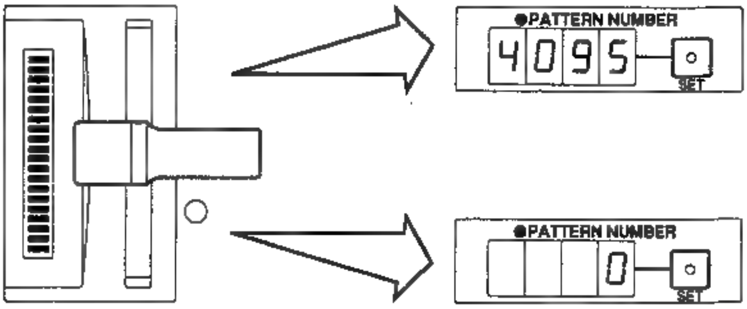
</td></tr>
</table>

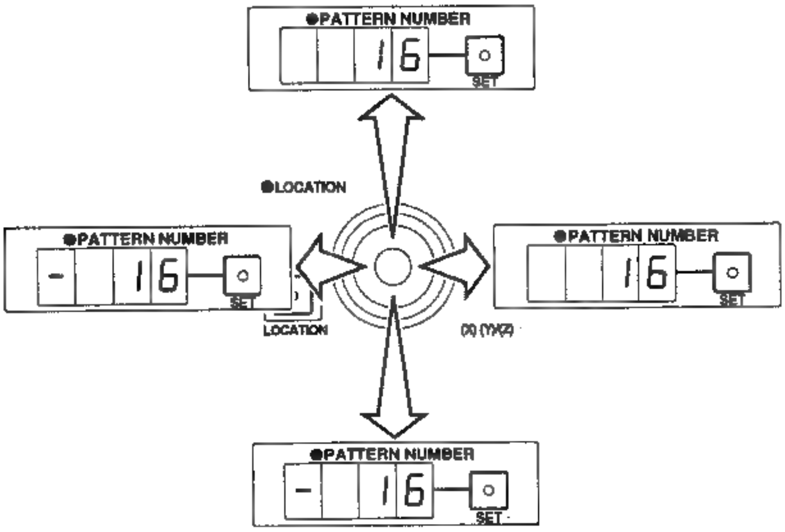
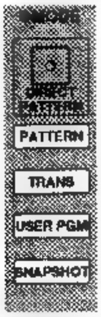
3-2-14. Checking Knobs, Levers and Buttons on Control Panel

Knobs and corresponding buttons

Knob		Corresponding button	
EFFECTS CONTROL block	F1	KEY PAD block	Button 7
	F2	KEY PAD block	Button 8
	F3	KEY PAD block	Button 9
	F4	KEY PAD block	CUT INS
EDGE block	CONTROL	EDGE block	Either EDGE block button
		BACKGROUND	Button 1
TITLE block	CLIP	TITLE block	Either TITLE block button
		BACKGROUND	Button 2
MATTES block	HUE	BACKGROUND	Button 3
	SAT	BACKGROUND	Button 4
	LUM	BACKGROUND	INT VIDEO
DOWNSTREAM KEYER	CLIP/GAIN	DOWNSTREAM KEYER	Either DOWNSTREAM KEYER block button

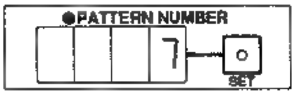

SONY
ENABLE
EDITOR/GPI
DFS-300
DME SWITCHER
SNAPSHOT
USER PROGRAM
LOCATION
EDGE
TITLE
MATTES
DOWNSTREAM KEYER
EFFECTS CONTROL
HUE
SAT
LUM
CONTROL
CLIP
CLIP/GAIN
COLOR CORRECTION
BACKGROUND
FOREGROUND
INT VIDEO
EFFECTS TRANSITION
PATTERN NUMBER
PATTERN/KEY PAD
MODE
AUTO TRANS

Execution method during operation	Confirmation item
STEP-1 While pressing the BACKGROUND 2 and the FOREGROUND 2, press the LOCATION. (NOTE: At this time, warning tone sounds). Step 2, 3, 4 and 5 can be checked undividually.	
STEP-2 Knob Check Referring to the table showing knobs and corresponding buttons, turn the knob while pressing the corresponding button.	• Turn the knob and read the values shown in the PATTERN NUMBER window.  (−) (+) ●PATTERN NUMBER -128 SET ●PATTERN NUMBER 128 SET • The values range between −128 (when the knob is fully counterclockwise) and +128 (when the knob is fully clockwise). The values are only displayed while the corresponding button is being pressed. If there is any abnormality, error is displayed.  Cause: The knobs on the control panel is abnormal. Operator action: Possible fault in knobs on the control panel, the AD converter and the selector (IC16, IC17, IC18/KY-309). • Press the ENTER on KEY PAD button to restore normal operation.
STEP-3 FADER lever Check Move the FADER lever from an end to the other end. While pressing any button of EFFECT TRANSITION block, move the FADER lever.	• Move the FADER lever and read the values shown in the PATTERN NUMBER window.  ●PATTERN NUMBER 4095 SET ●PATTERN NUMBER 0 SET • Values range from 0 (the bottom most end) to 4095 (the top most end). • Press the ENTER on KEY PAD button to restore normal operation.

Execution method during operation	Confirmation item
STEP-4 LOCATION (X) (Y)/(Z) lever Check X (left/right) direction: Move the LOCATION (X) (Y)/(Z) lever. Y (up/down) direction: While pressing EDIT of USER PROGRAM move the LOCATION (X) (Y)/(Z) lever.	- Move the LOCATION (X) (Y)/(Z) lever and read the values shown in the PATTERN NUMBER window.  ●PATTERN NUMBER 16 SET ●LOCATION -16 LOCATION (X) (Y)/(Z) - Moving the lever up or to the right increases the absolute value, moving it down or to the left decreases this value. The range on each axis is 0 to 16. - X (left/right) direction is checked without pressing button. - Y (up/down) direction is checked while the assigned button is pressed. - Press the ENTER on KEY PAD button to restore normal operation.
STEP-5 Button Check Press all the buttons one by one.	- Check that the following MODE indicators on the PATTERN/KEY PAD block light all at the same time. - At this time, the buttons of self-illuminating type light their LEDs and the other buttons light their nearest LEDs.  MODE DIRECT PATTERN PATTERN TRANS USER PGM SNAPSHOT - In this check, if two or more buttons are pressed at the same time, a warning sounds. If the warning sounds when only one button is pressed, suspect a fault like a short-circuit. - Press the ENTER on KEY PAD button to restore normal operation. (NOTE: Check the ENTER on KEY PAD button last.)

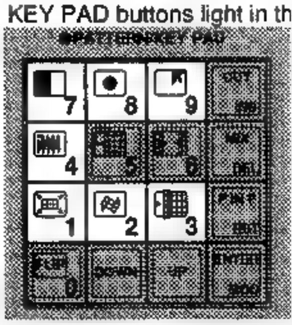
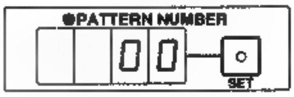
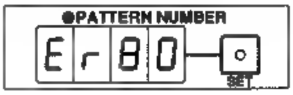
3-2-15. Checking buzzer on Control panel

The volume control of the buzzer on the control panel is checked.

Execution method during operation	Confirmation item
While pressing the BACKGROUND 3 and the FOREGROUND 3, press the LOCATION.	• "7" is displayed in the PATTERN NUMBER window and a buzzer continues sounding. At this time, all other LEDs light off.  • Check that the display of the PATTERN NUMBER window counts down from 7 to 0 every time the DOWN of KEY PAD button is being pressed, as a result the sound is getting low. When "o" is displayed in the PATTERN NUMBER window, the buzzer doesn't sound. • Press the ENTER on KEY PAD button to restore normal operation.

3-2-16. Checking timer on Control Panel

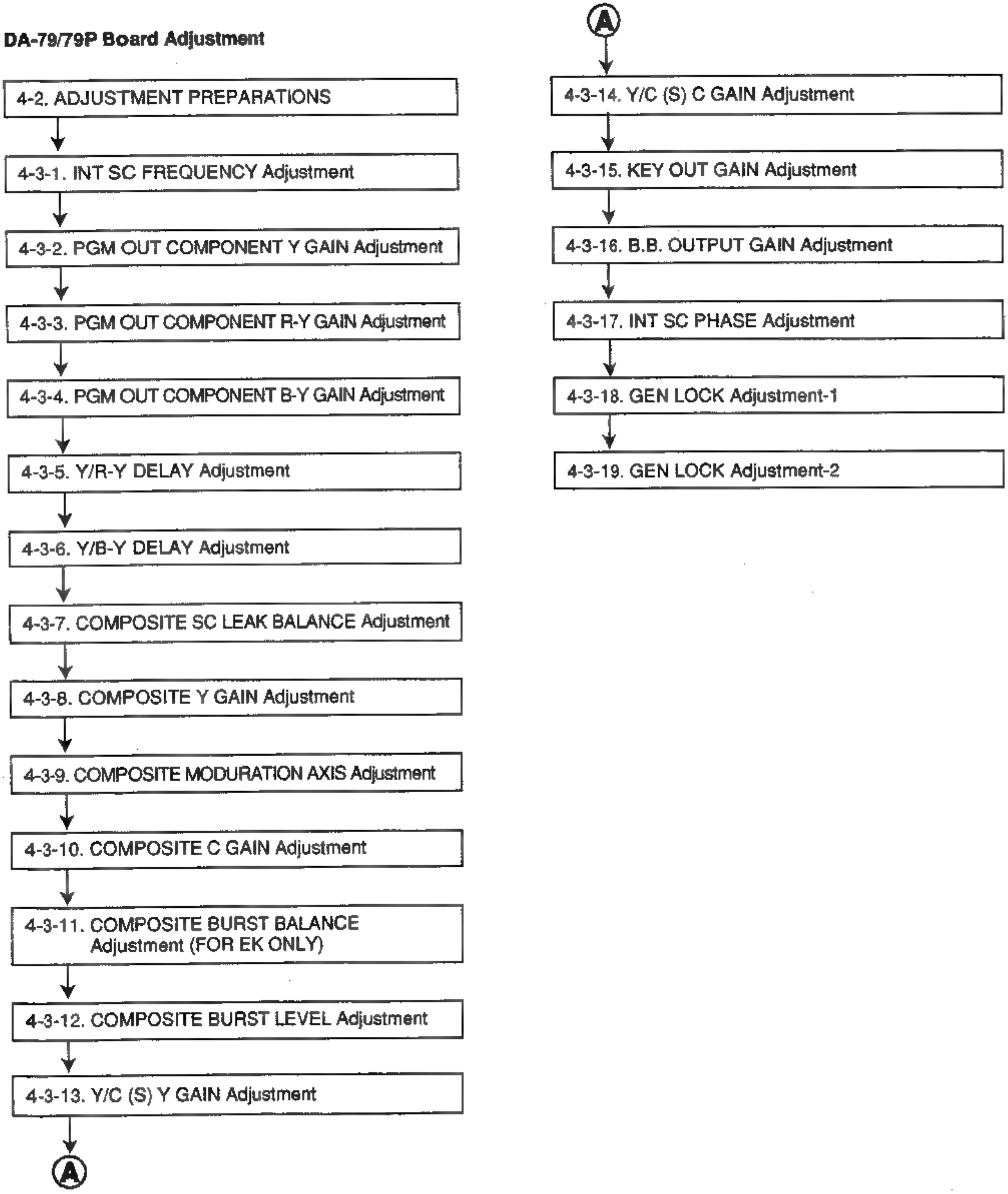
The timer of panel saver on the control panel is checked.

Execution method during operation	Confirmation item
While pressing the BACKGROUND 3 and the FOREGROUND 4, press the LOCATION.	• KEY PAD buttons light in the shape in letter C. (buttons 1-4 and 7-9)  7 8 9 4 5 6 1 2 3 0 DOWN UP ENTER • Check that the display of the PATTERN NUMBER window counts down from 3 to 1 and then STATUS is displayed on the PATTERN NUMBER window. • At this time, all other LEDs light off.  → Normal  → Abnormal • Press the ENTER on KEY PAD button to restore normal operation.
Cause • The timer built into the CPU of the control panel is abnormal.	
Operator action • Possible fault in the CPU (IC14/KY-309 board) of the control panel.	

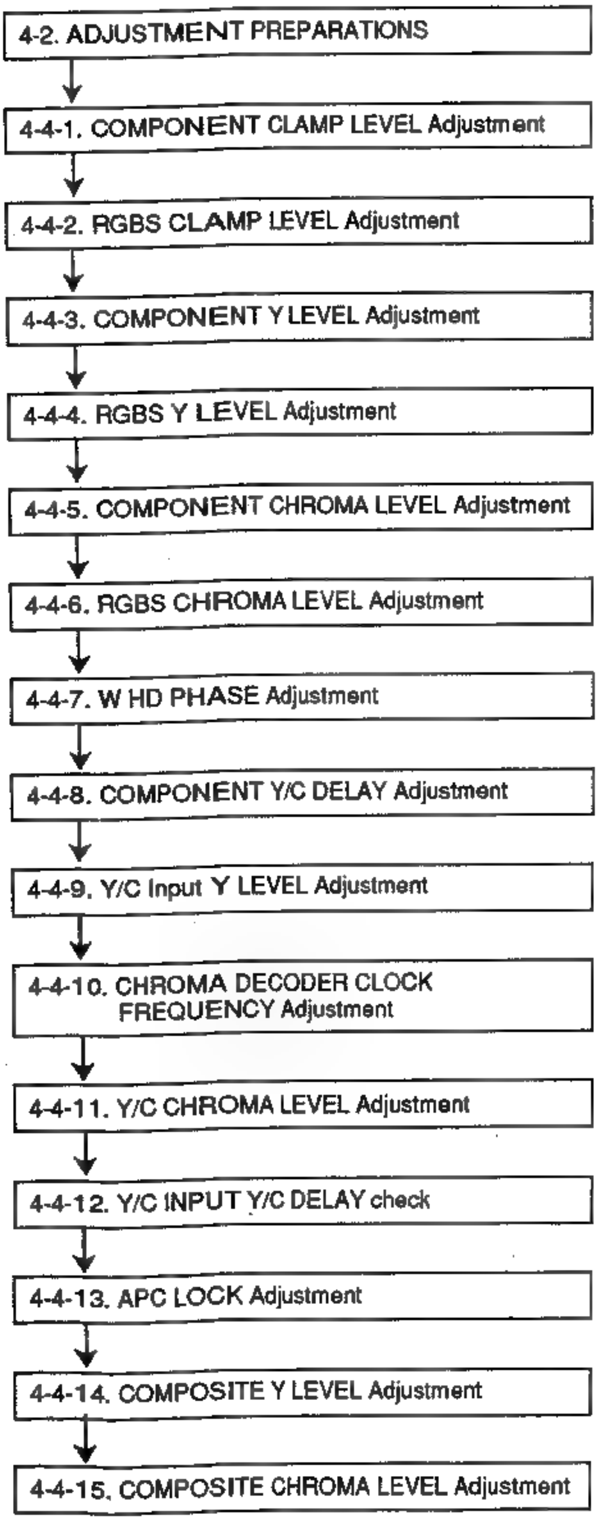
SECTION 4
ELECTRICAL ALIGNMENT

4-1. ADJUSTMENT SEQUENCE

DA-79/79P Board Adjustment


4-2. ADJUSTMENT PREPARATIONS
4-3-1. INT SC FREQUENCY Adjustment
4-3-2. PGM OUT COMPONENT Y GAIN Adjustment
4-3-3. PGM OUT COMPONENT R-Y GAIN Adjustment
4-3-4. PGM OUT COMPONENT B-Y GAIN Adjustment
4-3-5. Y/R-Y DELAY Adjustment
4-3-6. Y/B-Y DELAY Adjustment
4-3-7. COMPOSITE SC LEAK BALANCE Adjustment
4-3-8. COMPOSITE Y GAIN Adjustment
4-3-9. COMPOSITE MODURATION AXIS Adjustment
4-3-10. COMPOSITE C GAIN Adjustment
4-3-11. COMPOSITE BURST BALANCE Adjustment (FOR EK ONLY)
4-3-12. COMPOSITE BURST LEVEL Adjustment
4-3-13. Y/C (S) Y GAIN Adjustment
A
A
4-3-14. Y/C (S) C GAIN Adjustment
4-3-15. KEY OUT GAIN Adjustment
4-3-16. B.B. OUTPUT GAIN Adjustment
4-3-17. INT SC PHASE Adjustment
4-3-18. GEN LOCK Adjustment-1
4-3-19. GEN LOCK Adjustment-2

AD-104/104P Board Adjustment


4-2. ADJUSTMENT PREPARATIONS
4-4-1. COMPONENT CLAMP LEVEL Adjustment
4-4-2. RGBS CLAMP LEVEL Adjustment
4-4-3. COMPONENT Y LEVEL Adjustment
4-4-4. RGBS Y LEVEL Adjustment
4-4-5. COMPONENT CHROMA LEVEL Adjustment
4-4-6. RGBS CHROMA LEVEL Adjustment
4-4-7. W HD PHASE Adjustment
4-4-8. COMPONENT Y/C DELAY Adjustment
4-4-9. Y/C Input Y LEVEL Adjustment
4-4-10. CHROMA DECODER CLOCK FREQUENCY Adjustment
4-4-11. Y/C CHROMA LEVEL Adjustment
4-4-12. Y/C INPUT Y/C DELAY check
4-4-13. APC LOCK Adjustment
4-4-14. COMPOSITE Y LEVEL Adjustment
4-4-15. COMPOSITE CHROMA LEVEL Adjustment

4-2-2. Tools/Measuring Equipments

1. Composite Signal Generator
   Equivalent: 1410(NTSC)/Tektronix
   1411(PAL)/Tektronix
2. Component Signal Generator
   Equivalent: TSG300/Tektronix
3. Y/C Signal Generator
   Equivalent: TSG130A(NTSC)/Tektronix
   TSG131A(PAL)/Tektronix
4. RGB Signal Generator
   Equivalent: TSG130A(NTSC)/Tektronix
   TSG131A(PAL)/Tektronix
5. Oscilloscope
   Equivalent: 2445/Tektronix
6. Waveform Monitor and Vectorscope
   Equivalent: 1780(NTSC)/Tektronix
   1781(PAL)/Tektronix
7. Video Monitor
   Equivalent: PVM1444Q/Sony
8. Frequency Counter
   Equivalent: 5315/Hewlett Packard
9. Digital Voltmeter
   Equivalent: 3435A/Hewlett Packard
10. Video Cable (S-BNC)
    Sony Parts No.: J-6381-380-A
11. Multi-connector Cable (DIBNC)
    Sony Part No.: J-6031-820-A
12. Multi-connector Cable (DOBNC)
    Sony Part No.: J-6031-830-A
13. Extension Board (EX-326)
    Sony Part No.: J-6186-940-A

Switch Settings

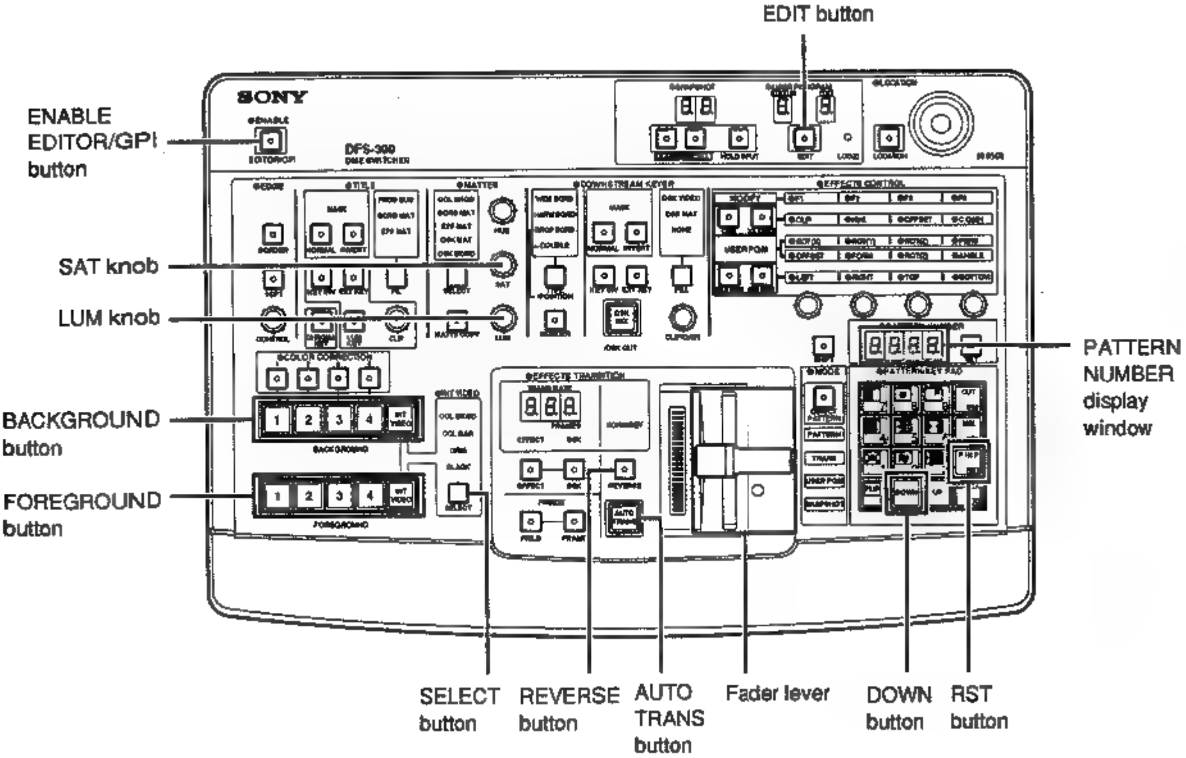
- SY-199/P board
  Editing equipment selection switch
  S101 .... PVE-500
  Set Up ON/OFF switch
  S201-2 .... { For UC: ON
  For EK: OFF

- DA-79/P board
  S101: 0°
  S102: { For UC: 7
  For EK: 6
  S301: R/G/B
  S302: 8
  S303: 7
  S401: { For UC: OFF
  For EK: ON

4-2-3. Built-In Color Bars

Selecting the built-In color bars

- The buttons, knobs and displays used in this manual are shown in the figure below.


EDIT button
ENABLE EDITOR/GPI button
SAT knob
LUM knob
BACKGROUND button
FOREGROUND button
PATTERN NUMBER display window
SELECT button
REVERSE button
AUTO TRANS button
Fader lever
DOWN button
RST button
SONY
DFS-300

Selecting the built-in color bars

STEP-1

Initialize the control panel setting

1. If the EDIT button of the USER PROGRAM section is lit, press it to turn it off.
2. While pressing the RST and DOWN buttons of the KEY PAD section, press the EDIT/GPI button.
   The buzzer will sound, and each setting will be initialized-returning them to factory settings.

STEP-2

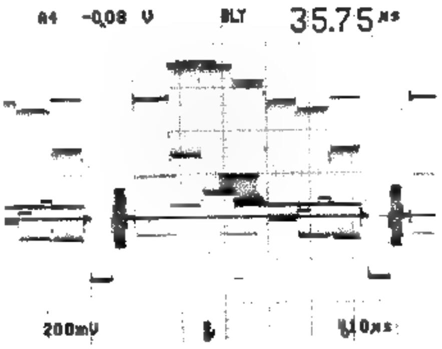
Output the built-in color bars to PGM OUT

- Select the COL BARS
  1. Select the INT VIDEO button with both the BACKGROUND bus and FOREGROUND bus.
  2. Push the FADER LEVER to the top or bottom. The INT VIDEO button of BACKGROUND bus will light up red and that of the FOREGROUND bus will light up orange.
  3. Press the INT VIDEO SELECT button and select COL BARS.

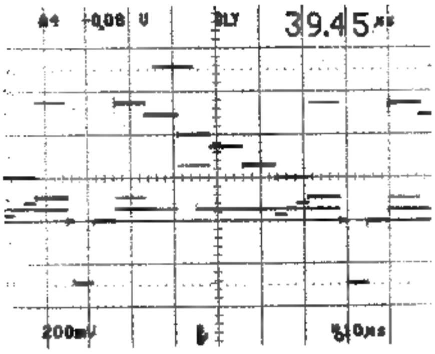
- Select COL BKGD (100% WHITE)
  1. Select the INT VIDEO buttons of both the BACKGROUND bus and FOREGROUND bus.
  2. Push the FADER LEVER to the top or bottom. The INT VIDEO button of BACKGROUND bus will light up red and that of the FOREGROUND bus will light up orange.
  3. Press the INT VIDEO SELECT button and select COL BKGD.
  4. Rotate the SAT knob of the MATTES section to the left until the buzzer sounds.
     Do the same for the LUM knob.

Built-In Color Bars (FOR UC)

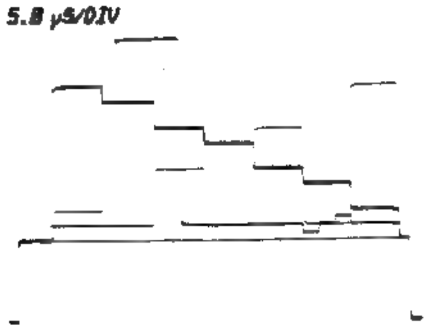
COMPOSITE



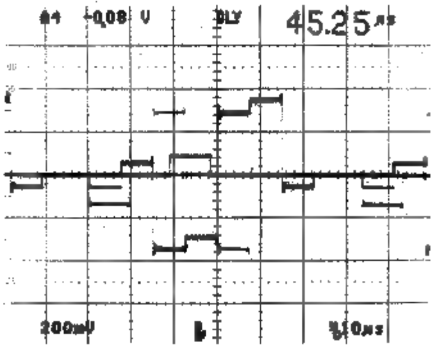
COMPONENT Y



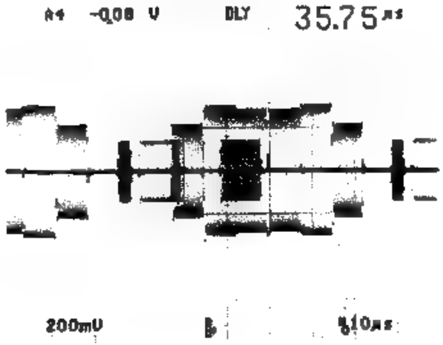
Y/C Y



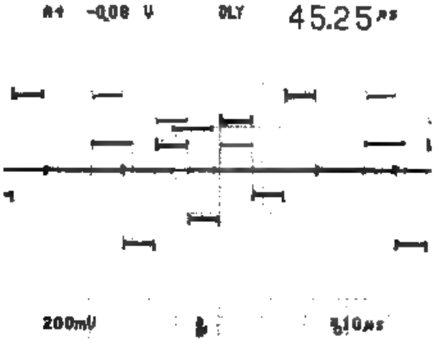
COMPONENT R-Y



Y/C C

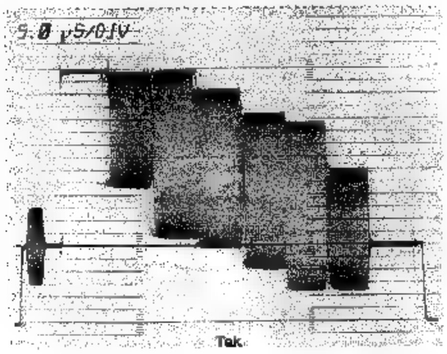


COMPONENT B-Y

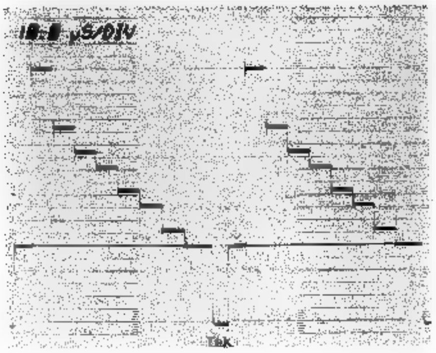


Built-in Color Bars (FOR EK)

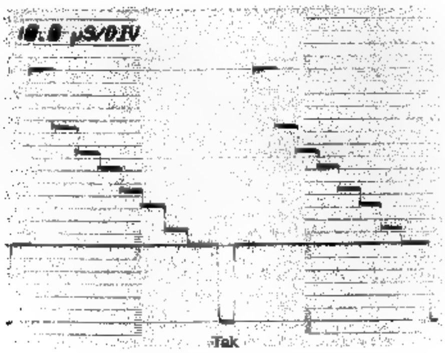
COMPOSITE



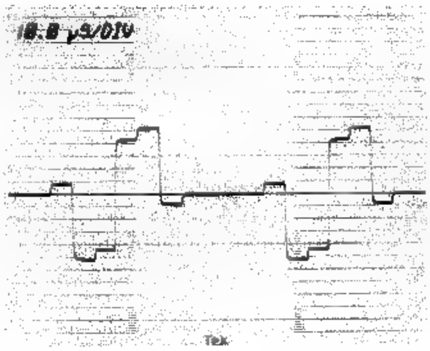
COMPONENT Y



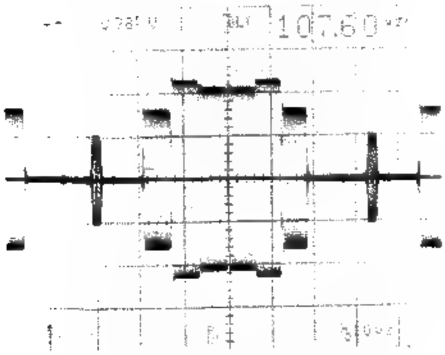
Y/C Y



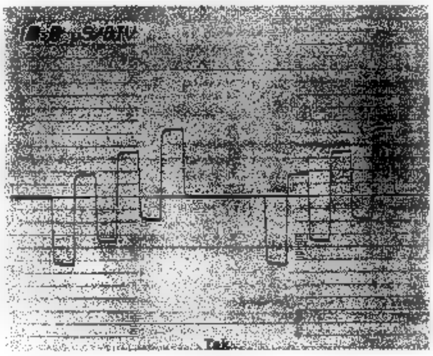
COMPONENT R-Y



Y/C C

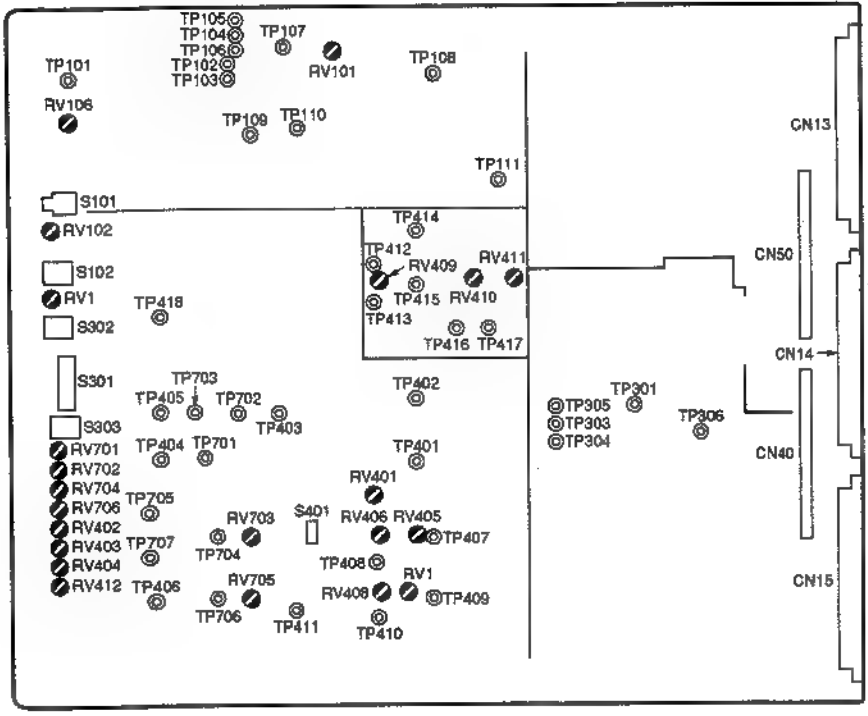


COMPONENT B-Y

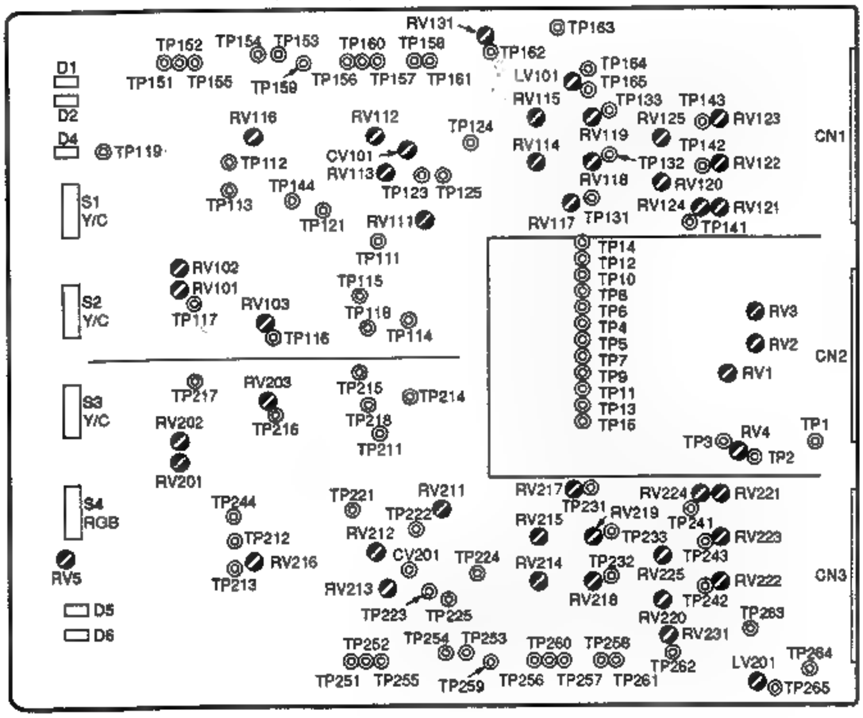


4-2-4. Layout of Adjustment Controls

DA-79/DA-79P Board (A Side)


TP105
TP104
TP106
TP102
TP103
TP107
RV101
TP108
TP101
RV106
TP109
TP110
TP111
CN13
S101
RV102
TP414
TP412
RV409
RV411
RV410
TP415
TP413
TP416
TP417
CN50
S102
RV1
TP418
S302
CN14
S301
TP703
TP405
TP702
TP403
TP402
TP301
TP305
TP303
TP304
TP306
S303
RV701
TP404
TP701
TP401
CN40
RV702
RV401
RV704
TP705
RV706
RV402
RV703
S401
RV406
RV405
TP407
RV403
TP707
TP704
TP408
RV404
RV1
RV412
TP406
RV705
RV408
TP409
CN15
TP706
TP411
TP410

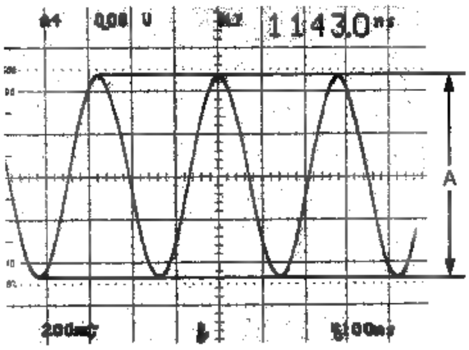
AD-104/AD-104P Board (A Side)


RV131
TP163
TP152
TP154
TP153
TP160
TP158
TP162
D1
TP151
TP155
TP159
TP156
TP157
TP161
LV101
TP164
TP165
D2
RV115
TP133
TP143
RV116
RV112
TP124
RV125
RV123
D4
TP119
RV114
RV119
TP142
CN1
TP112
CV101
TP132
RV122
RV113
RV118
RV120
TP144
TP123
TP125
S1
Y/C
TP113
TP121
RV111
RV117
TP131
RV124
RV121
TP141
TP111
TP14
TP12
RV102
TP10
RV101
TP115
TP8
TP6
RV3
S2
Y/C
RV103
TP117
TP118
TP4
TP114
TP116
TP5
RV2
TP7
CN2
RV203
TP215
TP9
RV1
TP217
TP214
TP11
S3
Y/C
RV202
TP216
TP218
TP13
TP15
RV4
TP1
TP211
TP3
TP2
RV201
TP244
TP221
RV211
RV217
RV224
RV221
S4
RGB
TP222
TP231
RV219
TP241
RV215
TP212
RV212
TP233
RV223
RV216
CV201
TP224
RV214
TP232
TP243
RV5
TP213
RV225
RV222
CN3
RV213
RV218
TP242
TP223
TP225
RV220
TP263
D5
D6
TP252
TP254
TP253
TP260
TP258
RV231
TP262
LV201
TP264
TP251
TP255
TP259
TP256
TP257
TP261
TP265

4-3. DA-79/P BOARD ADJUSTMENT

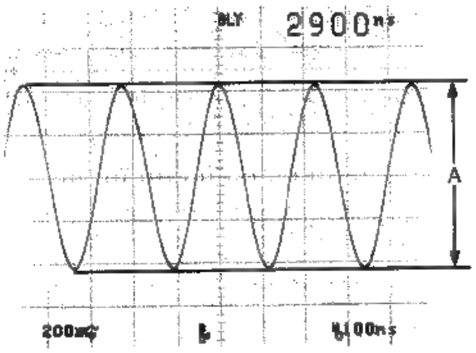
4-3-1. INT SC FREQUENCY Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4)= ON • Disconnect the GEN LOCK IN connector of the rear panel.		
STEP-2 • Oscilloscope CH-2: 200 mV/DIV(AC) 100 nS/DIV TRIG: CH2	CH-2: TP109/DA-79(C12)  A = 1.0 ± 0.2 V p-p • Check that the specification above is satisfied.	(Check)
STEP-3 • Adjust the oscilloscope as follows. CH2: 200 mV/DIV (AC). • Connect Frequency counter to CH-2 OUT of oscilloscope.	3.579545 MHz ± 5 Hz • Check that D105/DA-79 (D14) is off.	SC FREQUENCY adjustment ⊘RV101/DA-79 (A10)
STEP-4 • After this adjustment is completed, connect the GEN LOCK IN connector of the rear panel again.		

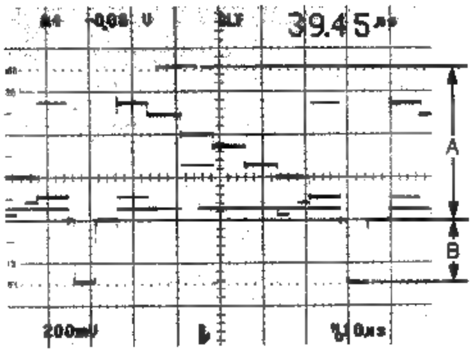
(4-3-1. INT SC FREQUENCY Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4)= OFF • Disconnect the GEN LOCK IN connector of the rear panel.		
STEP-2 • Oscilloscope CH-2: 200 mV/DIV(AC) 100 nS/DIV TRIG: CH2	CH-2: TP109/DA-79P(C12)  A = 1.0 ± 0.2 V p-p • Check that the specification above is satisfied.	(Check)
STEP-3 • Adjust the oscilloscope as follows. CH2: 200 mV/DIV (AC). • Connect Frequency counter to CH-2 OUT of oscilloscope.	4.433619 MHz ± 5 Hz • Check that D105/DA-79P (D14) is off.	SC FREQUENCY adjustment ⊘RV101/DA-79P (A10)
STEP-4 • After this adjusting is completed, connect the GEN LOCK IN connector of the rear panel again.		

4-3-2. PGM OUT COMPONENT Y GAIN Adjustment

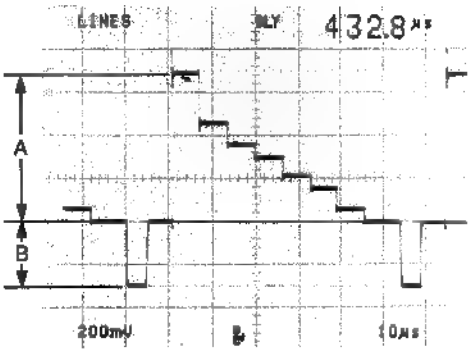
FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH4)	COMPONENT 1 OUT Y  A = 714 ± 5 mV p-p B = 286 ± 4 mV p-p	A: Y GAIN adjustment ⊘ RV702/DA-79 (J14) B: SYNC LEVEL (Y) ⊘ RV410/DA-79 (E8)

NOTE After this adjustment is completed, perform thefollowing adjustments in the sequence of STEPs 1 through 3.
STEP 1 4-3-8. COMPOSITE Y GAIN adjustment
STEP 2 4-3-13. Y/C (S) Y GAIN adjustment
STEP 3 4-3-16. B.B. OUT GAIN adjustment

(4-3-2. PGM OUT COMPONENT Y GAIN Adjustment)

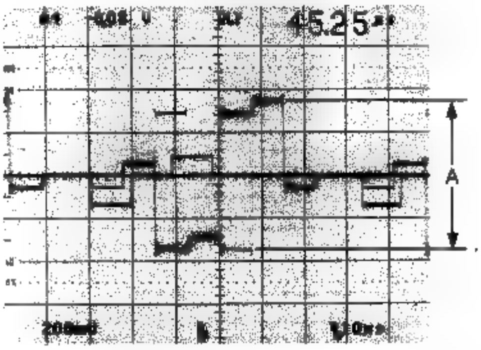
FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Wavefrom Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH4)	COMPONENT 1 OUT Y  A = 700 ± 5 mV p-p B = 300 ± 4 mV p-p	A: Y GAIN adjustment ⊘ RV702/DA-79P (J14) B: SYNC LEVEL (Y) ⊘ RV410/DA-79P (E8)

NOTE After this adjustment is completed, perform the following adjustments in the sequence of STEPs 1 through 3.
STEP 1 4-3-8. COMPOSITE Y GAIN adjustment
STEP 2 4-3-13. Y/C (S) Y GAIN adjustment
STEP 3 4-3-16. B.B. OUT GAIN adjustment

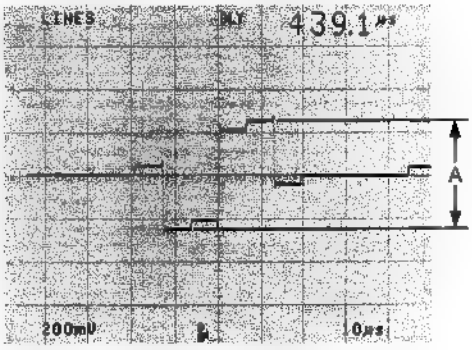
4-3-3. PGM OUT COMPONENT R-Y GAIN Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COLOR BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is Used. (1) Wavefrom Monitor INPUT: CH-B2 MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	COMPONENT 1 OUT R-Y  A = 700 ± 5 mV p-p	R-Y GAIN adjustment ⊘ RV704/DA-79 (J14)

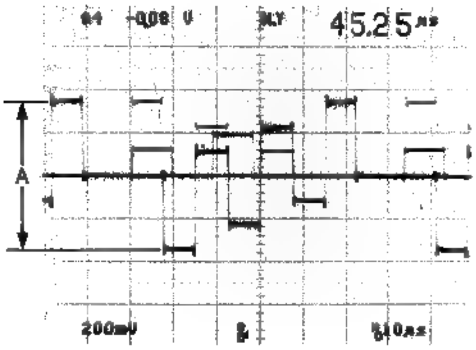
(4-3-3. PGM OUT COMPONENT R-Y GAIN Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4)= OFF • Built-in color bar: COLOR BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is Used. (1) Wavefrom Monitor INPUT: CH-B2 MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	COMPONENT 1 OUT R-Y  A = 525 ± 7 mV p-p	R-Y GAIN adjustment ⊘ RV704/DA-79P (J14)

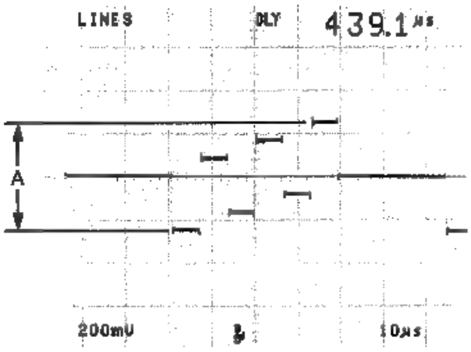
4-3-4. PGM OUT COMPONENT B-Y GAIN Adjustment

FOR UC

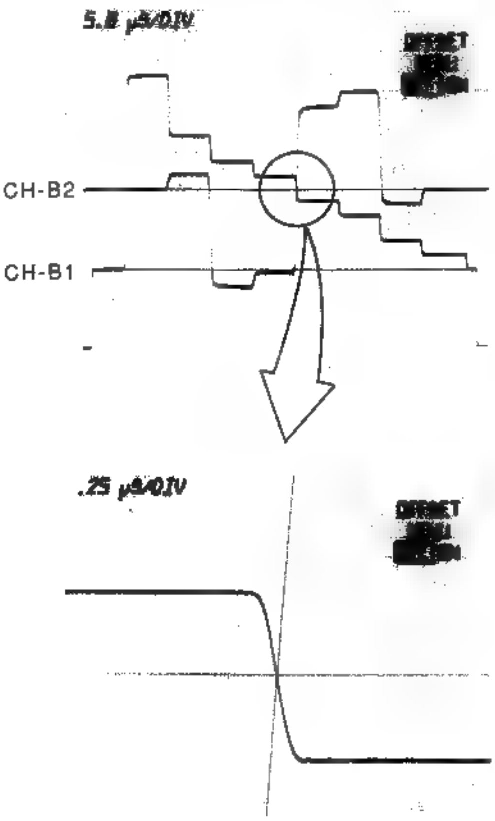
Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection:Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-B3 MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	COMPONENT 1 OUT B-Y  A = 700 ± 5 mV p-p	B-Y GAIN adjustment ● RV706/DA-79P (K14)

(4-3-4. PGM OUT COMPONENT B-Y GAIN Adjustment)

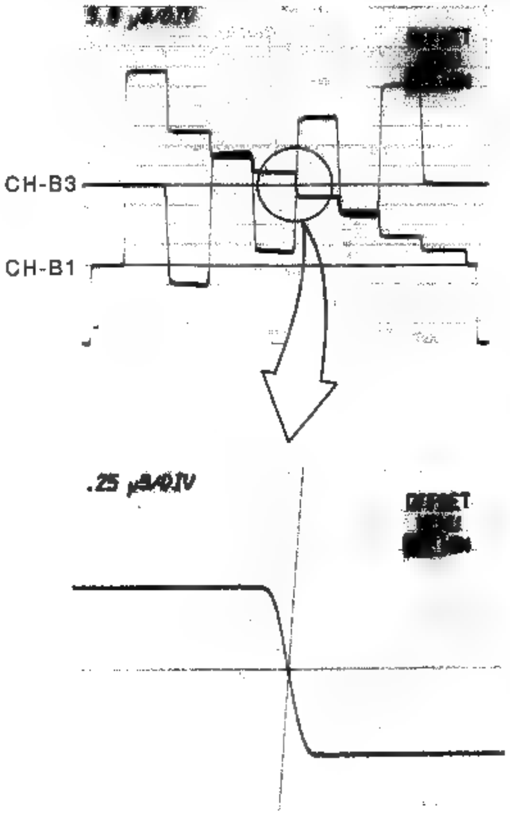
FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 - Connection:Section 4-2-1 Connection - Extension board: Extend the DA-79P board with the EX-326 board. - Switch setting: S201-2/SY-199P (M4) = OFF - Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 - (1) or (2) is used. (1) Waveform Monitor INPUT: CH-B3 MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	COMPONENT 1 OUT B-Y  A = 525 ± 7 mV p-p	B-Y GAIN adjustment ⊘ RV706/DA-79P (K14)

4-3-5. Y/R-Y DELAY Adjustment

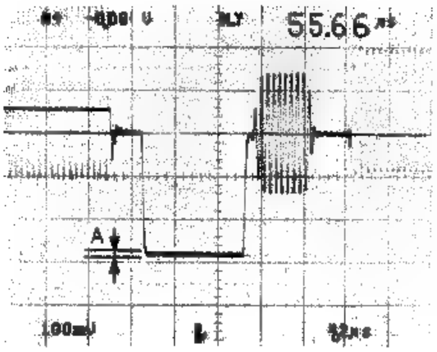
Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79/79P board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON(For UC) S201-2/SY-199P (M4) = OFF(For EK) • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • Observe the fourth gradation of the component color bars (line between green and magenta) by enlarging the time axis. • Waveform monitor INPUT: CH-B1 (COMPONENT Y) CH-B2 (COMPONENT R-Y) MODE: OVERLAY REF : EXT	CH-B1: PGM OUT (COMPONENT Y) CH-B2: PGM OUT (COMPONENT R-Y)  • Adjust so that the Y and R-Y signals have the same phase. (Adjust so that the line between green and magenta become equal.)	R-Y DELAY adjustment ⊘ RV703/DA-79 (K12) ⊘ RV703/DA-79P (K12)

4-3-6. Y/B-Y DELAY Adjustment

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79/79P board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON(For UC) S201-2/SY-199P (M4) = OFF(For EK) • Built-in color bar: COL BAR To select:See section 4-2-3.		
STEP-2 • Observe the fourth gradation of the component color bars (line between green and magenta) by enlarging the time axis. • Waveform monitor INPUT: CH-B1 (COMPONENT Y) CH-B3 (COMPONENT B-Y) MODE: OVERLAY REF : EXT	CH-B1: PGM OUT (COMPONENT Y) CH-B3: PGM OUT (COMPONENT B-Y)  • Adjust so that the Y and B-Y signals have the same phase. (Adjust so that the line between green and magenta become equal.)	Y/B-Y DELAY adjustment ⊘ RV705/DA-79 (L12) ⊘ RV705/DA-79P (L12)

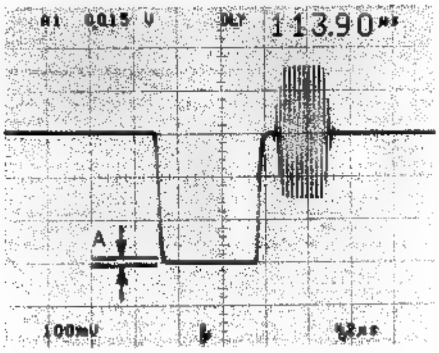
4-3-7. COMPOSITE SC LEAK BALANCE Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 100 mV/DIV 2 μS/DIV TRIG: B.B (CH-4)	COMPOSITE OUT-1  A = Below 20 mV p-p (Adjust to minimum.)	SC LEAK (R-Y) adjustment ⊘ RV406/DA-79 (K9) SC LEAK (B-Y) adjustment ⊘ RV408/DA-79 (L9)

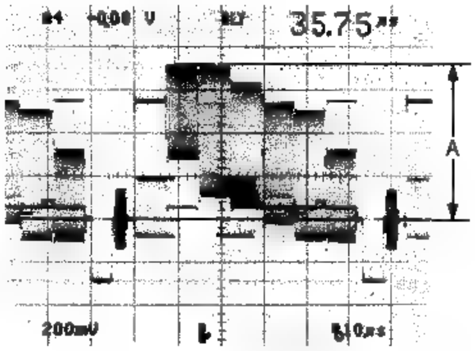
(4-3-7. COMPOSITE SC LEAK BALANCE Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 100 mV/DIV 2 µS/DIV TRIG: B.B (CH-4)	COMPOSITE OUT-1  A = Below 20 mV p-p (Adjust to minimum.)	SC LEAK (R-Y) adjustment ● RV406/DA-79P (K9) SC LEAK (B-Y) adjustment ● RV408/DA-79P (L9)

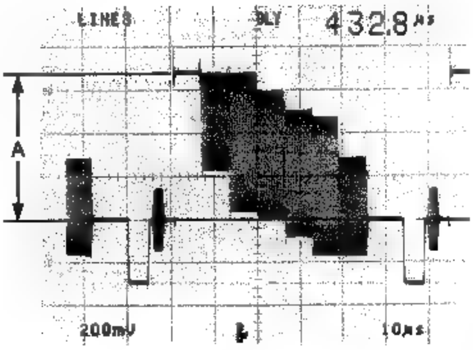
4-3-8. COMPOSITE Y GAIN Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	COMPOSITE OUT-1  A = 714 ± 5 mV p-p	COMPOSITE GAIN adjustment ⊘ RV402/DA-79 (K14)

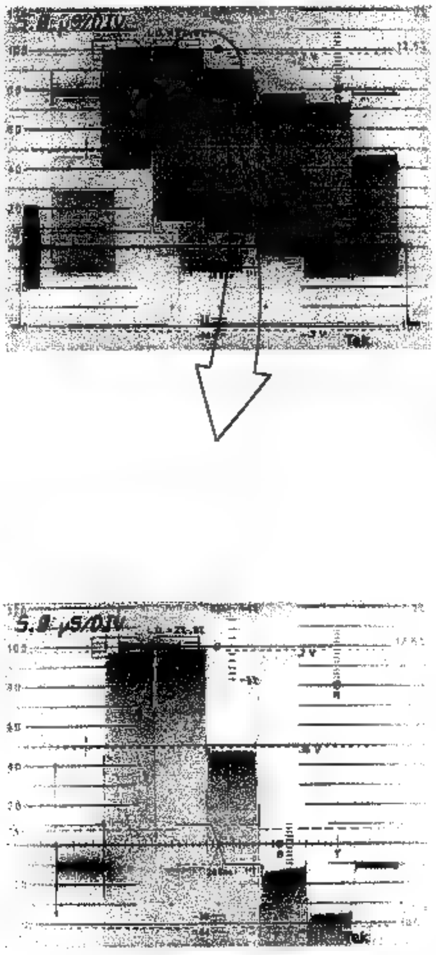
(4-3-8. COMPOSITE Y GAIN Adjustment)

FOR EK

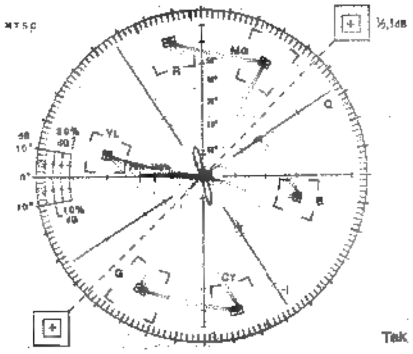
<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the DA-79P board with the EX-326 board.
• Switch setting: S201-2/SY-199 (M4) = OFF
• Built-in color bar: COL BAR
To select: See section 4-2-3.</td></tr>
<tr><td>STEP-2
• (1) or (2) is used.
(1) Waveform Monitor
INPUT: CH-A
MODE: WFM
REF : EXT
(2) Oscilloscope
CH-1: 200 mV/DIV
10 µS/DIV
TRIG: B.B (CH-4)</td><td>COMPOSITE OUT-1


A = 700 ± 5 mV p-p</td><td>COMPOSITE GAIN adjustment
❷ RV402/DA-79P (K14)</td></tr>
</table>

4-3-9. COMPOSITE MODURATION AXIS Adjustment

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Cnnection: Section 4-2-1 Connection • Extension board: Extend the DA-79/P board with the EX-326 board. • Switch setting : S201-2/SY-199 (M4) = ON (for UC) S201-2/SY-199P (M4) = OFF (for EK) S401/DA-79(K10) = ON (for UC) S401/DA-79P(K10) = OFF (for EK)		
STEP-2 • Scale the GAIN of the waveform monitor up 5 times. • Observe the third gradation (cyan) and fouth gradation (green) of the composite color bars. • (1) or (2) is used. (1) Waveform Monitor INPUT : CH-BI (COMPOSITE) MODE : WFM HORIZONTAL : ONE REF : EXT GAIN : X5 (2) Oscilloscope CHI : 50mV/DIV 5µS/DIV TRIG : B.B(CH-4)	PGM OUT (COMPOSITE)  • Adjust ⊘ RV409 so that the signals of third and fouth gradation have the same level.	MODURATION AXIS adjustment ⊘ RV409/DA-79 (E9) ⊘ RV409/DA-79P (E9)

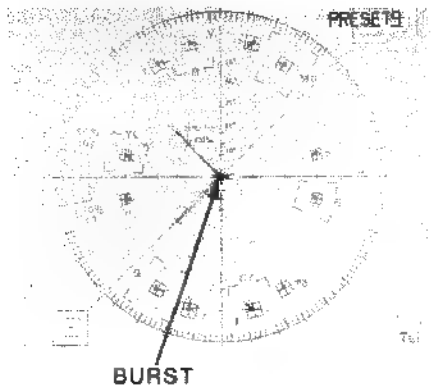
4-3-10. COMPOSITE C GAIN Adjustment

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • Vectorscope 75%, SET UP L.DISP : VECT INPUT : CH-A FILTER: FLAT REF : EXT	COMPOSITE OUT-1  NTSC ½,1dB MG R YL 20% 10% Q B G CY I Tek All luminance points should be inside the respective "⊞" mark on the vectorscope. • Adjust ⊘RV401 and ⊘RV407 so that MG, B, CY, G, YL and R satisfy the above specifications.	C LEVEL adjustment ⊘ RV401/DA-79 (J9) B-Y AXIS LEVEL adjustment ⊘ RV407/DA-79P (L9)

NOTE After this adjustment is completed, perform 4-3-14. Y/C (S) C GAIN adjustment.

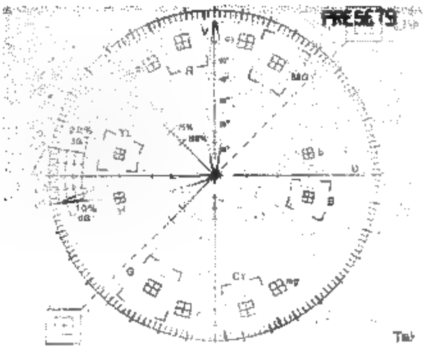
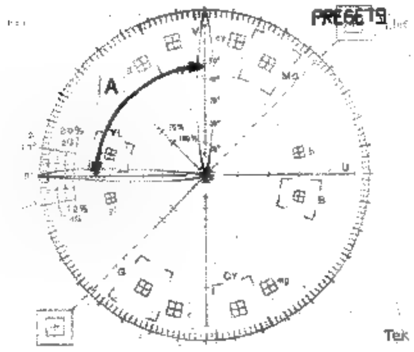
(4-3-10. COMPOSITE C GAIN Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • Vectorscope 75% L.DISP : VECT INPUT : CH-A FILTER: FLAT REF : EXT	COMPOSITE OUT-1  All luminance points should be inside the respective "田" mark on the vectorscope. • Adjust ⊘RV401 and ⊘RV407 so that MG, mg, B, b, CY, cy, G, g, YL, yl, R and r satisfy the above specifications.	C LEVEL adjustment ⊘ RV401/DA-79P (J9) B-Y AXIS LEVEL adjustment ⊘ RV407/DA-79P (L9)

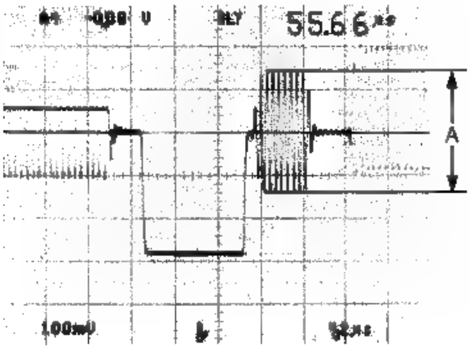
NOTE After this adjustment is completed, perform 4-3-14. Y/C (S) C GAIN adjustment.

4-3-11. COMPOSITE BURST BALANCE Adjustment (FOR EK ONLY)

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P(M4) = OFF		
STEP-2 • Vectorscope 75% L.DISP : VECT INPUT : CH-A FILTER: FLAT REF : EXT	COMPOSITE OUT-1 NG  OK  A = 90 ± 0.5° • Set the spot of BURST on the position of circumference by GAIN control on the vectorscope. Then adjust ❷RV405 so that A is the specification.	BURST BALANCE adjustment ❷ RV405/DA-79P (K9)

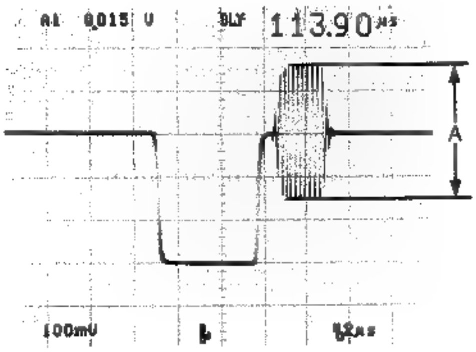
4-3-12. COMPOSITE BURST LEVEL Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 100 mV/DIV 2 µS/DIV TRIG: B.B (CH-4)	COMPOSITE OUT-1  A = 286 ± 4 mV p-p	BURST LEVEL (PGM) adjustment ⊘ RV411/DA-79 (E7)

(4-3-12. COMPOSITE BURST LEVEL Adjustment)

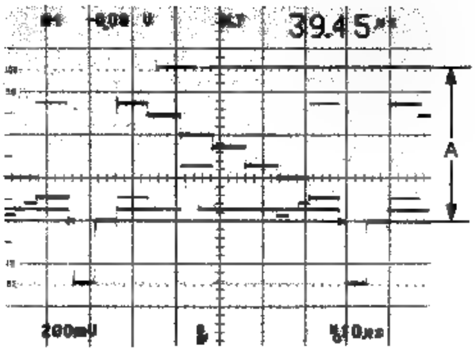
FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 100 mV/DIV 2 µS/DIV TRIG: B.B (CH-4)	COMPOSITE OUT-1  A = 300 ± 4 mV p-p	BURST LEVEL (PGM) adjustment ⊘ RV411/DA-79P (E7)

4-3-13. Y/C (S) Y GAIN Adjustment

NOTE After 4-3-2. PGM OUT COMPONENT Y GAIN adjustment is completed, perform this adjustment.

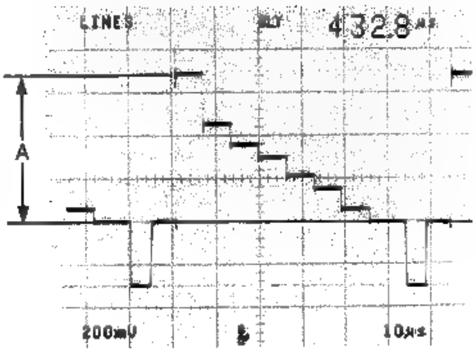
FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection. • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 μS/DIV TRIG: B.B (CH-4)	Y/C-1 OUT Y  A = 714 ± 5 mV p-p	S-Y GAIN adjustment ⊘ RV403/DA-79 (K14)

(4-3-13. Y/C (S) Y GAIN Adjustment)

NOTE After 4-3-2. PGM OUT COMPONENT Y GAIN adjustment is completed, perform this adjustment.

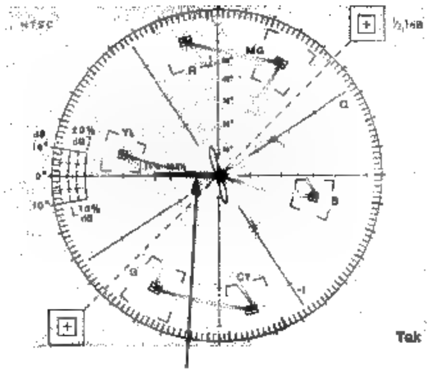
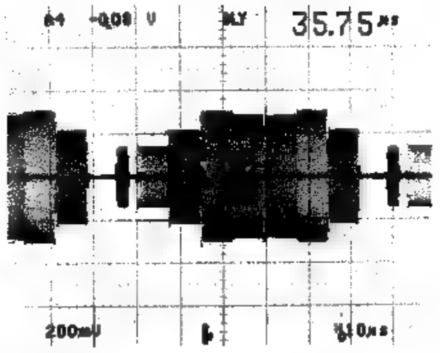
FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	Y/C-1 OUT Y  A = 700 ± 5 mV p-p	S-Y GAIN adjustment ⊘ RV403/DA-79P (K14)

4-3-14. Y/C (S) C GAIN Adjustment

NOTE After4-3-10. COMPOSITE C GAIN adjustment is completed, perform this adjustment.

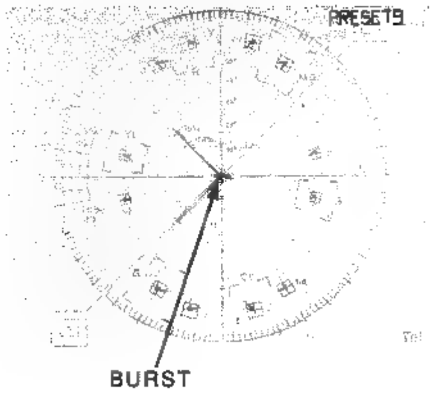
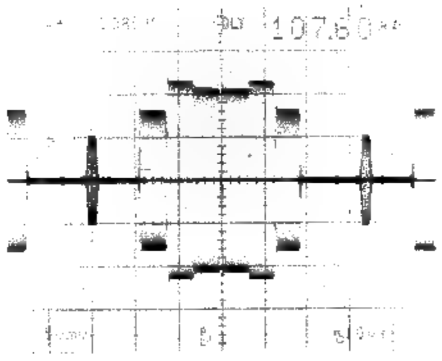
FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • Vectorscope 75%, SET UP L.DISP : VECT INPUT : CH-A FILTER : FLAT REF : EXT	Y/C-1 OUT C  All luminance points should be inside the respective "⊞" mark on the vectorscope. • Adjust ⊘RV404 so that MG, B, CY, G, YL and R satisfy the above specifications.	S-C GAIN adjustment ⊘ RV404/DA-79 (L14)
STEP-3 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 μS/DIV TRIG: B.B (CH-4)	Y/C-1 OUT C  • Check that the above waveform is displayed.	(Check)

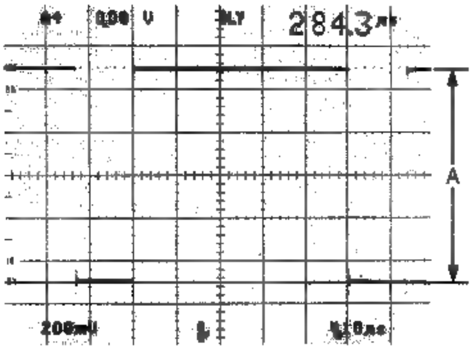
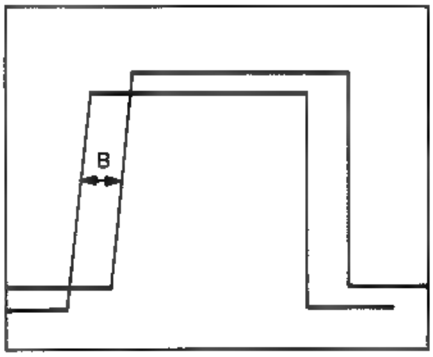
(4-3-14. Y/C (S) C GAIN Adjustment)

NOTE After 4-3-10. COMPOSITE C GAIN adjustment is completed, perform this adjustment.

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF • Built-in color bar: COL BAR To select: See section 4-2-3.		
STEP-2 • Vectorscope 75% L.DISP : VECT INPUT : CH-A FILTER : FLAT REF : EXT	Y/C-1 OUT C  All luminance points should be inside the respective "⊞" mark on the vectorscope. • Adjust ⊘RV404 so that MG, mg, B, b, CY, cy, G, g, YL, yl, R and r satisfy the above specifications.	S-C GAIN adjustment ⊘ RV404/DA-79P (L14)
STEP-3 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	Y/C-1 OUT C  • Check that the above waveform is displayed.	(Check)

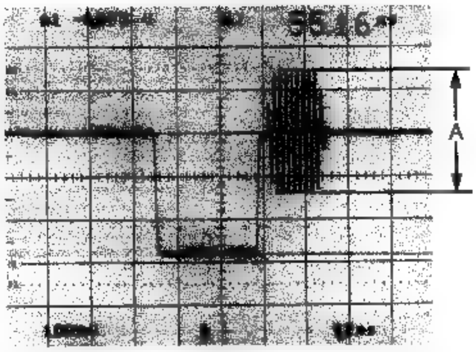
4-3-15. KEY OUT GAIN Adjustment

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79/79P board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON(For UC) S201-2/SY-199P (M4) = OFF(For EK) • Control panel setting: 1. Select the PATTERN NUMBER = 1100. 2. Push the AUTO TRANS button.		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 200 mV/DIV 10 µS/DIV TRIG: B.B (CH4)	KEY OUT  A = 1000 ± 40 mV p-p	KEY GAIN adjustment ⊘ RV701/DA-79 (H14) ⊘ RV701/DA-79P (H14)
STEP-3 • Change the Oscilloscope setting to 200 mS/DIV. Same as STEP-2 except above setting.	 B = 1050 ± 30 nS • While changing S303/DA-79 or DA-79P (H14) from 0 to F one level at a time, check that the phase of the waveform gradually delays. Also check that the above specification is satisfied when it changes from F to 0.	(Check)

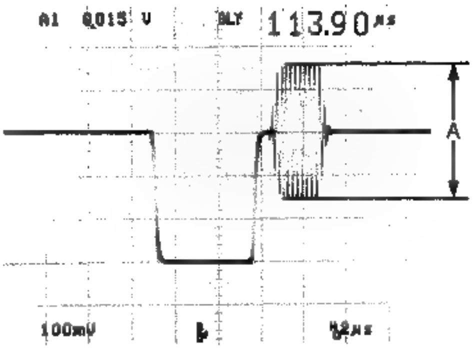
4-3-16. B.B OUTPUT GAIN Adjustment

NOTE After 4-3-2. PGM OUT COMPONENT Y GAIN adjustment is completed, perform this adjustment.

FOR UC

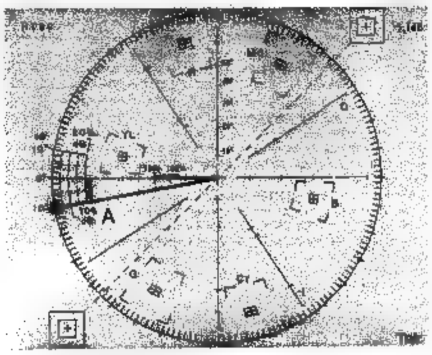
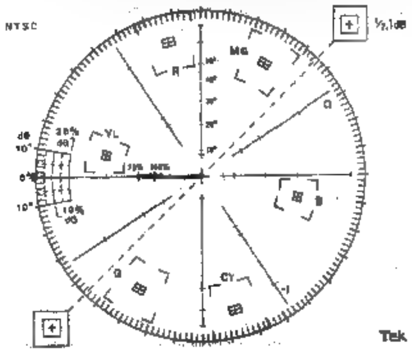
Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 100 mV/DIV 2 µS/DIV TRIG: B.B (CH-4)	B.B OUT-1  A = 286 ± 4 mV p-p	B.B OUT GAIN adjustment ⊘RV412/DA-79P (L14)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF		
STEP-2 • (1) or (2) is used. (1) Waveform Monitor INPUT: CH-A MODE: WFM REF : EXT (2) Oscilloscope CH-1: 100 mV/DIV 2 µS/DIV TRIG: B.B (CH-4)	B.B OUT-1  A = 300 ± 4 mV p-p	B.B OUT GAIN adjustment ⊘RV412/DA-79P (L14)

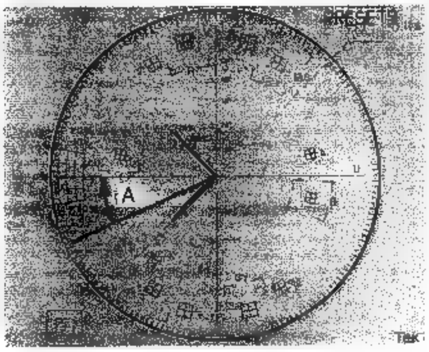
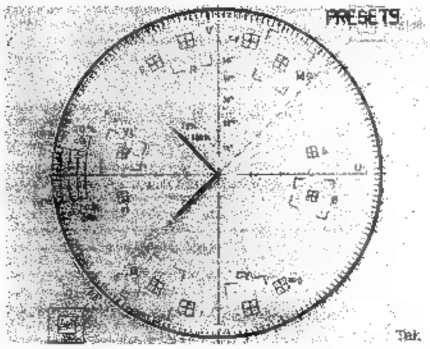
4-3-17. INT SC PHASE Adjustment

FOR UC

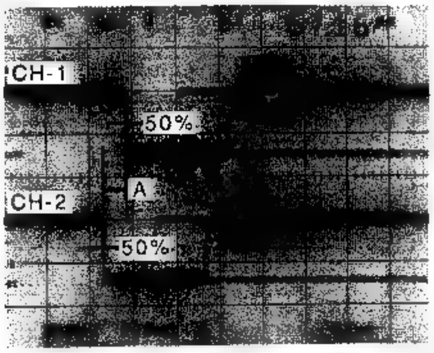
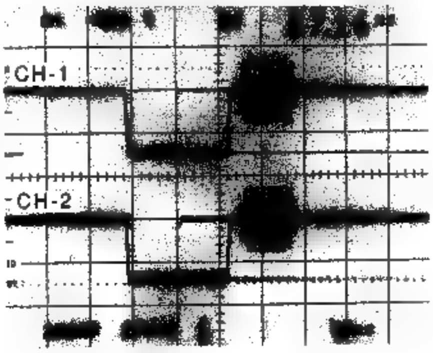
Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON • Disconnect the GEN LOCK IN connector of the rear panel.		
STEP-2 • Vectorscope 75%, SET UP L.DISP : SCH INPUT : CH-A FILTER: FLAT GAIN : VAR REF : INT	PGM OUT 1 (COMPOSITE) NG  OK  A = 0 ± 0.5° • Adjust ⊘RV106 so that the specification above is satisfied.	INT SC PHASE adjustment ⊘RV106/DA-79 (C14)
STEP-3 • After this adjustment is completed, connect the GEN LOCK IN connector of the rear panel again.		

(4-3-17. INT SC PHASE Adjustment)

FOR EK

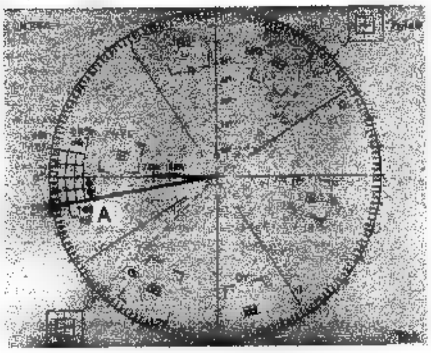
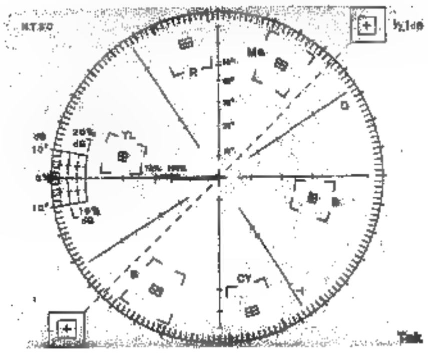
Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF • Disconnect the GEN LOCK IN connector of the rear panel.		
STEP-2 • Vectorscope 75% L.DISP : SCH INPUT : CH-A FILTER : FLAT GAIN : VAR REF : INT	PGM OUT 1 (COMPOSITE) NG  OK  A = 0 ± 0.5° • Adjust ⊘RV106 so that the specification above is satisfied.	INT SC PHASE adjustment ⊘RV106/DA-79P (C14)
STEP-3 • After this adjustment is completed, connect the GEN LOCK IN connector of the rear panel again.		

4-3-18. GEN LOCK Adjustment-1

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79/79P board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON (For UC) S201-2/SY-199P (M4) = OFF (For EK)		
STEP-2 • Oscilloscope CH-1: 200 mV/DIV 2 μS/DIV CH-2: 200 mV/DIV 2 μS/DIV TRIG: B.B (CH-4)	• Check that D105/DA-79 (D14) lights up.(for UC) • Check that D105/DA-79P (D14) lights up.(for EK) CH-1: B.B OUT-1 CH-2: GEN LOCK IN NG  OK  A = 0 ± 50 nS • Adjust ⊘RV103 and S102 so that the specification above is satisfied.	H PHASE FINE adjustment ⊘RV103/DA-79 (F14) ⊘RV103/DA-79P (F14) H PHASE COARSE S102/DA-79 (E14) S102/DA-79P (E14)

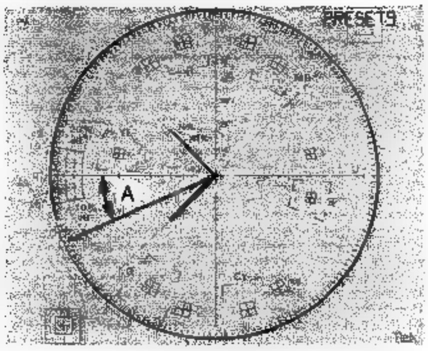
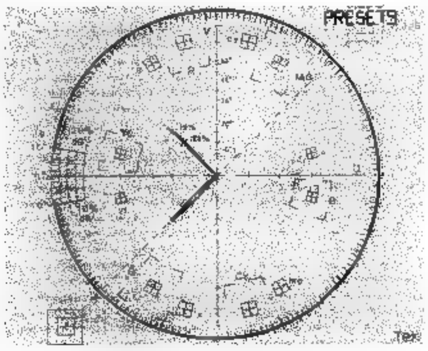
4-3-19. GEN LOCK Adjustment-2

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79 board with the EX-326 board. • Switch setting: S201-2/SY-199 (M4) = ON		
STEP-2 • Vectorscope 75%, SET UP L.DISP : SCH INPUT : CH-A FILTER: FLAT GAIN : VAR REF : EXT	PGM OUT 1 (COMPOSITE) NG  OK  A = 0 ± 0.5° • Adjust ⊘RV102 and S101 so that the specification above is satisfied.	SC PHASE FINE adjustment ⊘RV102/DA-79 (D14) SC PHASE COARSE S101/DA-79 (D14)

(4-3-19. GEN LOCK Adjustment-2)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the DA-79P board with the EX-326 board. • Switch setting: S201-2/SY-199P (M4) = OFF		
STEP-2 • Vectorscope 75% L.DISP : SCH INPUT : CH-A FILTER : FLAT GAIN : VAR REF : EXT	PGM OUT 1 (COMPOSITE) NG  OK  A = 0 ± 0.5° • Adjust ⊘RV102 and S101 so that the specification above is satisfied.	SC PHASE FINE adjustment ⊘RV102/DA-79P (D14) SC PHASE COARSE S101/DA-79P (D14)

4-4. AD-104/104P BOARD ADJUSTMENTS

4-4-1. COMPONENT CLAMP LEVEL Adjustment

FOR UC

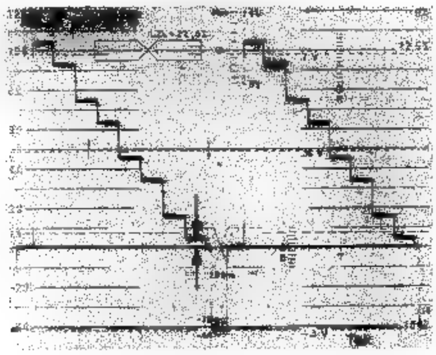
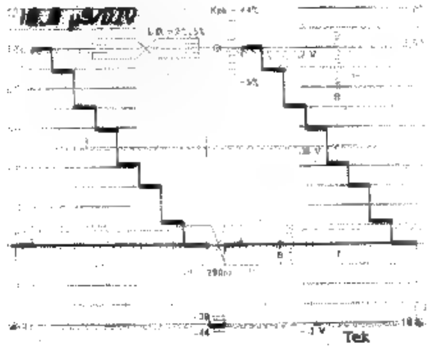
NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104 board with the EX-326 board.
• Test signal: COMPONENT 100% Color Bars
• Switch setting: S1/AD-104 (D14) = COMPONENT
S201-2/SY-199 (M4) = ON
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104 (K14) lights.
When adjusting B BUS: D6/AD-104 (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

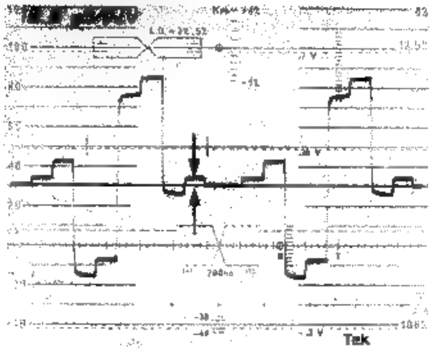
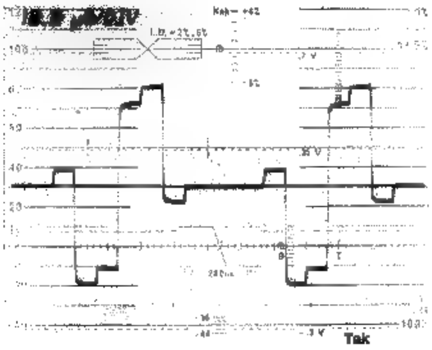
(4-4-1. COMPONENT CLAMP LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Waveform monitor INPUT: CH-B1 MODE: WFM REF : EXT	PGM OUT (COMPONENT Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: Y DC adjustment ⊘ RV121/AD-104 (D3) B BUS: Y DC adjustment ⊘ RV221/AD-104 (J3)

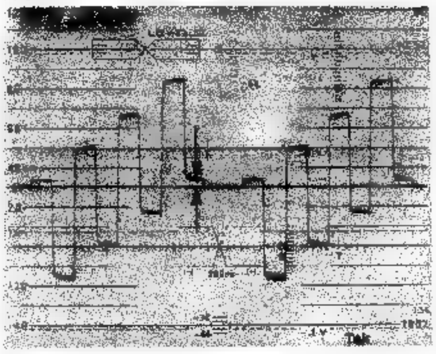
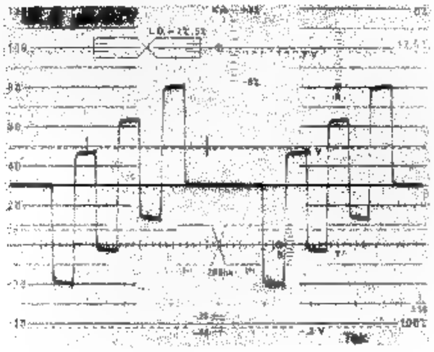
(4-4-1. COMPONENT CLAMP LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Waveform monitor INPUT: CH-B2 MODE: WFM REF : EXT	PGM OUT (COMPONENT R-Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: R-Y DC adjustment ⊘ RV122/AD-104 (C3) B BUS: R-Y DC adjustment ⊘ RV222/AD-104 (K3)

(4-4-1. COMPONENT CLAMP LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-4 • Waveform monitor INPUT: CH-B3 MODE: WFM REF : EXT	PGM OUT (COMPONENT B-Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: B-Y DC adjustment ⊘ RV123/AD-104 (B3) B BUS: B-Y DC adjustment ⊘ RV223/AD-104 (K3)

4-4-1. COMPONENT CLAMP LEVEL Adjustment

FOR EK

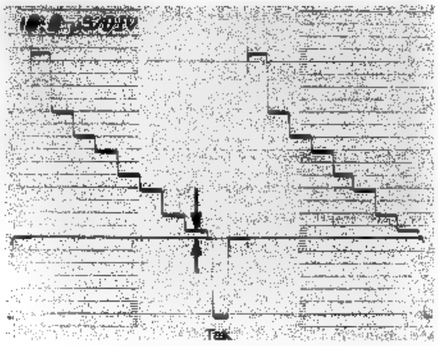
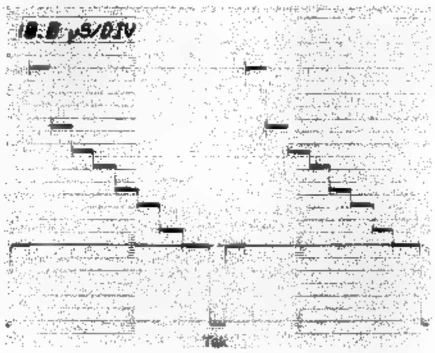
NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104P board with the EX-326 board.
• Test signal: COMPONENT 75% Color Bars
• Switch setting: S1/AD-104P (D14) = COMPONENT
S201-2/SY-199P (M4) = OFF
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

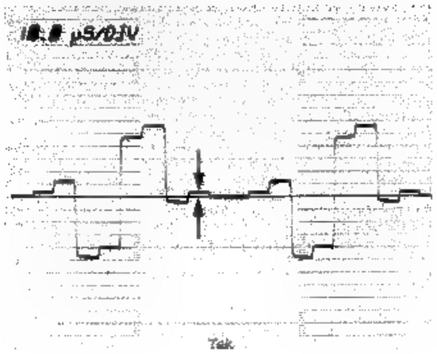
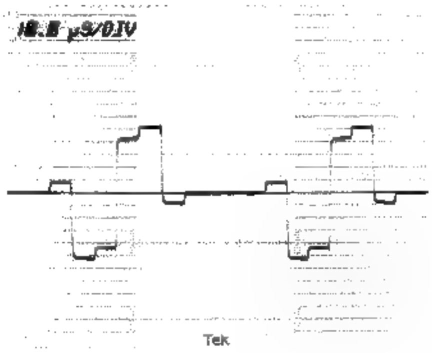
(4-4-1. COMPONENT CLAMP LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Waveform monitor INPUT : CH-B1 MODE : WFM REF : EXT	PGM OUT (COMPONENT Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: Y DC adjustment ⊘ RV121/AD-104P (D3) B BUS: Y DC adjustment ⊘ RV221/AD-104P (J3)

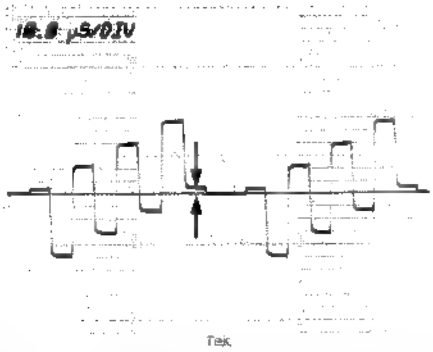
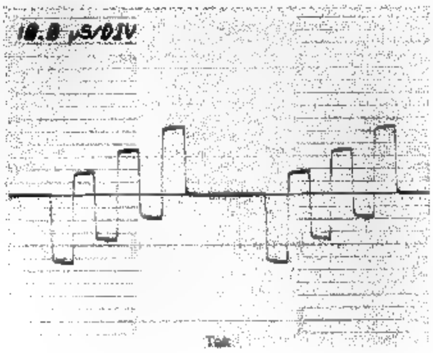
(4-4-1. COMPONENT CLAMP LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Waveform monitor INPUT : CH-B2 MODE : WFM REF : EXT	PGM OUT (COMPONENT R-Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: R-Y DC adjustment ⊘ RV122/AD-104P (C3) B BUS: R-Y DC adjustment ⊘ RV222/AD-104P (K3)

(4-4-1. COMPONENT CLAMP LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-4 • Waveform monitor INPUT : CH-B3 MODE : WFM REF : EXT	PGM OUT (COMPONENT B-Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: B-Y DC adjustment ⊘ RV123/AD-104P (B3) B BUS: B-Y DC adjustment ⊘ RV223/AD-104P (K3)

4-4-2. RGBS CLAMP LEVEL Adjustment

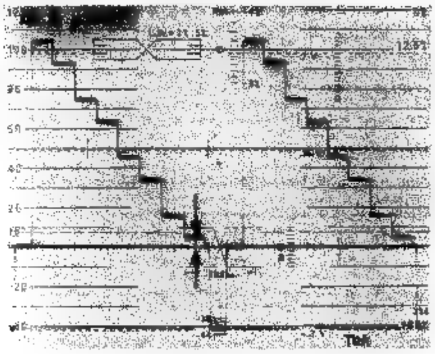
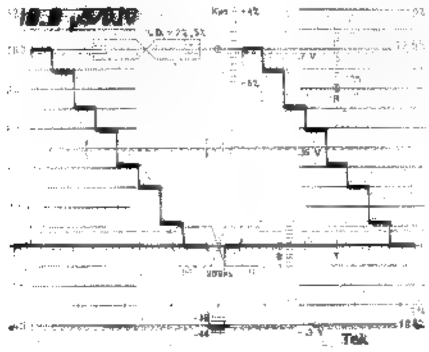
FOR UC
NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104 board with the EX-326 board.
• Test signal: COMPONENT 100% Color Bars
• Switch setting: S201-2/SY-199 (M4) = ON
S4/AD-104 (J14) =R/G/B/S
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 4, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104 (K14) lights.
When adjusting B BUS: D6/AD-104 (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

(4-4-2. RGBS CLAMP LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Waveform monitor INPUT: CH-B1 MODE: WFM REF : EXT	PGM OUT (COMPONENT Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: Y (when RGB/RGBS is input) DC adjustment ⊘ RV124/AD-104 (D4) B BUS: Y (when RGB/RGBS is input) DC adjustment ⊘ RV224/AD-104 (J4)

4-4-2. RGBS CLAMP LEVEL Adjustment

FOR EK

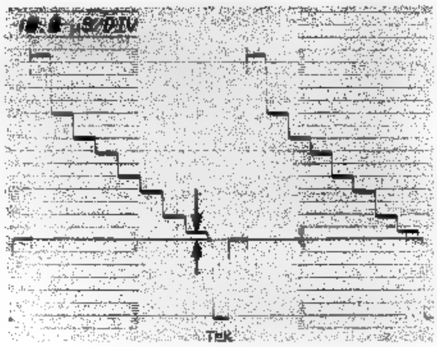
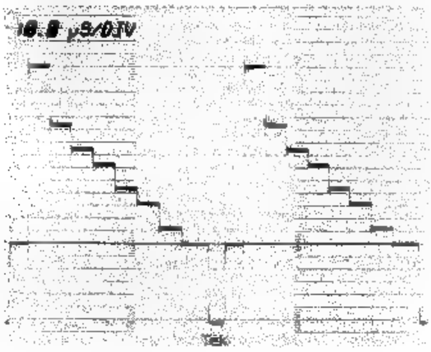
NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104P board with the EX-326 board.
• Test signal: COMPONENT 75% Color Bars
• Switch setting: S201-2/SY-199P (M4) = OFF
S4/AD-104P (J14) =R/G/B/S
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 4, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

(4-4-2. RGBS CLAMP LEVEL Adjustment)

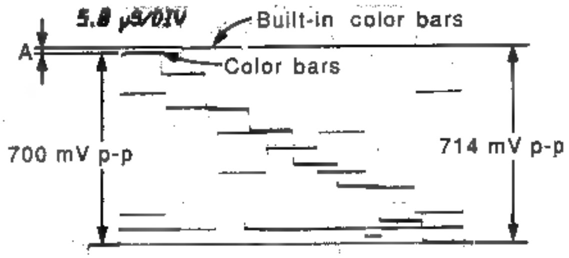
FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Waveform monitor INPUT : CH-B1 MODE : WFM REF : EXT	PGM OUT (COMPONENT Y) NG  OK  • Adjust so that the difference in the pedestal steps becomes 0.	A BUS: Y (when RGB/RGBS is input) DC adjustment ⊘ RV124/AD-104P (D4) B BUS: Y (when RGB/RGBS is input) DC adjustment ⊘ RV224/AD-104P (J4)

4-4-3. COMPONENT Y LEVEL Adjustment

FOR UC

NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board and the CLAMP LEVEL.

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104 board with the EX-326 board. • Test signal: 100% Color Bars • Switch setting: S1/AD-104 (D14) = COMPONENT S201-2/SY-199 (M4) = ON • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS = 1, FOREGROUND BUS = 2 After completing the above settings, check that the Y signal has been output. Test points When adjusting A BUS: D5/AD-104 (K14) lights. When adjusting B BUS: D6/AD-104 (K14) lights. When the waveform is not displayed Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus. 4. FOREGROUND BUS = INT VIDEO (COL BAR) **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Position of the fader lever: In the vicinity of the center • The color bars of input 1 and the white(100%) of the built-in color bar should be seen simultaneously. • Waveform monitor INPUT : CH-B1 MODE : WFM REF : EXT	PGM OUT (COMPONENT Y)  5.0 μS/DIV Built-in color bars A Color bars 700 mV p-p 714 mV p-p A = 14 mV p-p • Adjust so that the difference between the color bars (Y) of input 1 and the built-in color bars (Y) becomes 14 mV p-p.	A BUS: CPNT Y GAIN adjustment ⊘ RV117/AD-104 (D6) B BUS: CPNT Y GAIN adjustment ⊘ RV217/AD-104 (J6)

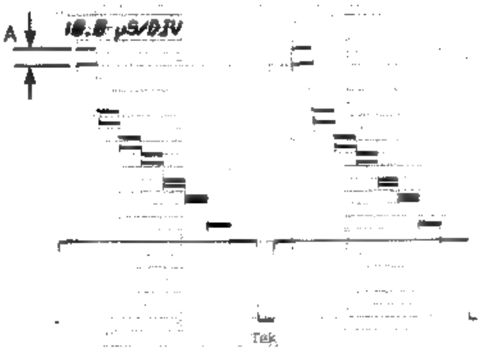
(4-4-3. COMPONENT Y LEVEL Adjustment)

FOR EK

NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board and the CLAMP LEVEL.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104P board with the EX-326 board.
• Test signal: 75% Color Bars
• Switch setting: S1/AD-104P (D14) = COMPONENT
S201-2/SY-199P (M4) = OFF
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
<tr><td>STEP-2
• Position of the fader lever:
In the vicinity of the center
• The color bars of input 1 and the white(100%) of the built-in color bar should be seen simultaneously.

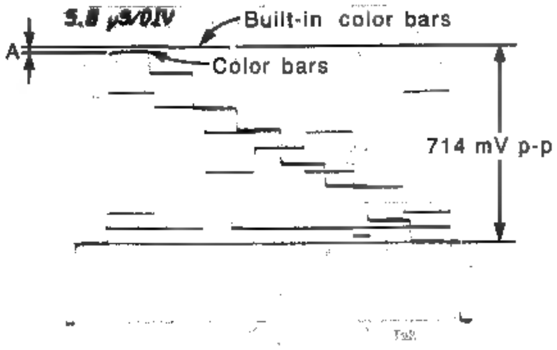
• Waveform monitor
INPUT : CH-B1
MODE : WFM
REF : EXT</td><td>PGM OUT (COMPONENT Y)

A = 0 mV

• Adjust so that the difference between the color bars (Y) of input 1 and the built-in color bars (Y) becomes 0 mV.
(The color bars (Y) of input 1 and the built-in color bars (Y) is 700 mV.)</td><td>A BUS: CPNT Y GAIN adjustment
⊘ RV117/AD-104P (D6)

B BUS: CPNT Y GAIN adjustment
⊘ RV217/AD-104P (J6)</td></tr>
</table>

4-4-4. RGBS Y LEVEL Adjustment

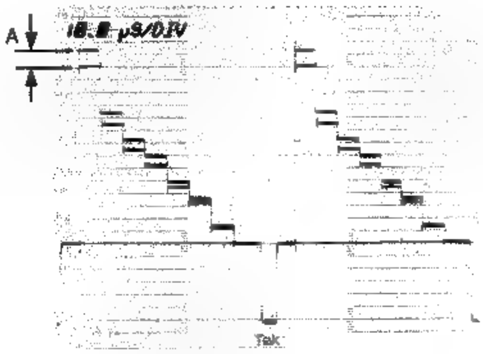
FOR UC
NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board and the CLAMP LEVEL.

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104 board with the EX-326 board. • Test signal: 100% Color Bars • Switch setting: S201-2/SY-199 (M4) = ON S4/AD-104 (J14) = R/G/B/S • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS = 1, FOREGROUND BUS = 2 After completing the above settings, check that the Y signal has been output. Test points When adjusting A BUS: D5/AD-104 (K14) lights. When adjusting B BUS: D6/AD-104 (K14) lights. When the waveform is not displayed Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus. 4. FOREGROUND BUS = INT VIDEO (COL BAR) **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Position of the fader lever: In the vicinity of the center • The color bars of input 1 and the white(100%) of the built-in color bar should be seen simultaneously. • Waveform monitor INPUT : CH-B1 MODE : WFM REF : EXT	PGM OUT (COMPONENT Y)  5.0 μS/DIV Built-in color bars Color bars A 714 mV p-p A = 0 mV p-p • Adjust so that the color bars (Y) of input 1 and the built-in color bars (Y) becomes same amplitude.	RGB Y GAIN adjustment ⊘ RV1/AD-104 (G3)

(4-4-4. RGBS Y LEVEL Adjustment)

FOR EK

NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board and the CLAMP LEVEL.

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104P board with the EX-326 board. • Test signal: 75% Color Bars • Switch setting: S201-2/SY-199P (M4) = OFF S4/AD-104P (J14) = R/G/B/S • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS = 1, FOREGROUND BUS = 2 After completing the above settings, check that the Y signal has been output. Test points When adjusting A BUS: D5/AD-104P (K14) lights. When adjusting B BUS: D6/AD-104P (K14) lights. When the waveform is not displayed Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus. 4. FOREGROUND BUS = INT VIDEO (COL BAR) **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Position of the fader lever: In the vicinity of the center • The color bars of input 1 and the white(100%) of the built-in color bar should be seen simultaneously. • Waveform monitor INPUT: CH-B1 MODE: WFM REF : EXT	PGM OUT (COMPONENT Y)  A = 0 mV • Adjust so that the difference between the color bars (Y) of input 1 and the built-in color bars (Y) becomes 0 mV. (The color bars (Y) of input 1 and the built-in color bars (Y) is 700 mV.)	RGB Y GAIN adjustment ⊘ RV1/AD-104P (G3)

4-4-5. COMPONENT CHROMA LEVEL Adjustment

FOR UC

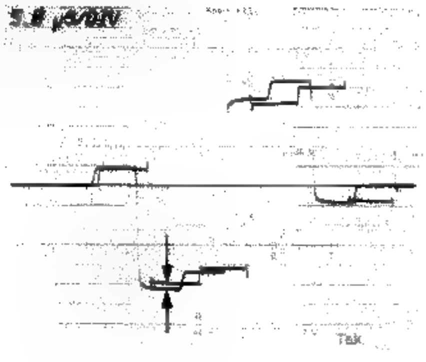
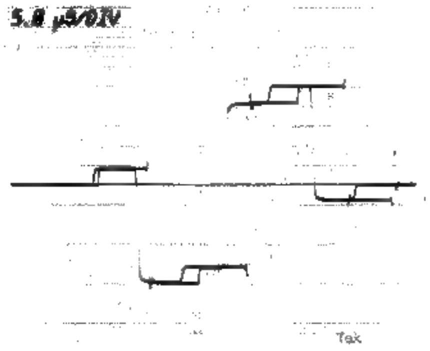
NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board and the CLAMP LEVEL.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104 board with the EX-326 board.
• Test signal: 75% Color Bars
• Switch setting: S1/AD-104 (D14) = COMPONENT
S201-2/SY-199 (M4) = ON
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER=Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104 (K14) lights.
When adjusting B BUS: D6/AD-104 (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

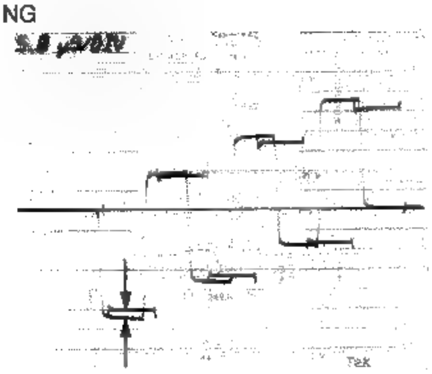
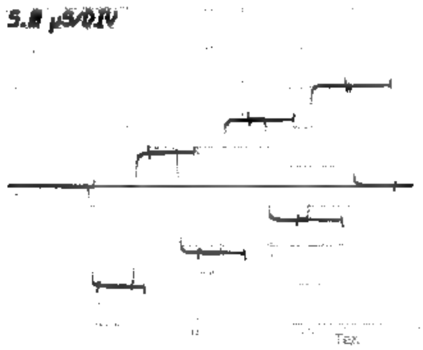
(4-4-5. COMPONENT CHROMA LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Position of fader lever: In the vicinity of the center • Waveform monitor INPUT : CH-B2 MODE : WFM REF : EXT	PGM OUT (COMPONENT R-Y) NG  OK  • Adjust so that the amplitudes of the color bars (R-Y) of input 1 and the built-in color bars (R-Y) become equal.	A BUS: CPNT R-Y GAIN adjustment ⊘ RV118/AD-104 (C5) B BUS: CPNT R-Y GAIN adjustment ⊘ RV218/AD-104 (K5)

(4-4-5. COMPONENT CHROMA LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Position of fader lever: In the vicinity of the center • Waveform monitor INPUT : CH-B3 MODE : WFM REF : EXT	PGM OUT (COMPONENT B-Y) NG  OK  • Adjust so that the amplitudes of the color bars (B-Y) of input 1 and the built-in color bars (B-Y) become equal.	A BUS: CPNT B-Y GAIN adjustment ⊘ RV119/AD-104 (B5) B BUS: CPNT B-Y GAIN adjustment ⊘ RV219/AD-104 (K5)

(4-4-5. COMPONENT CHROMA LEVEL Adjustment)

FOR EK

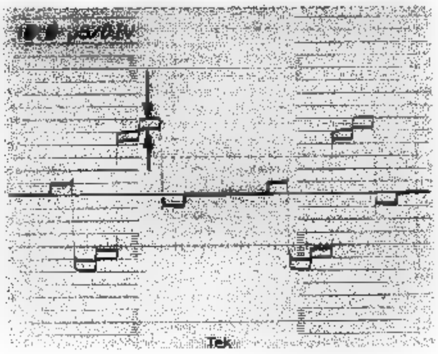
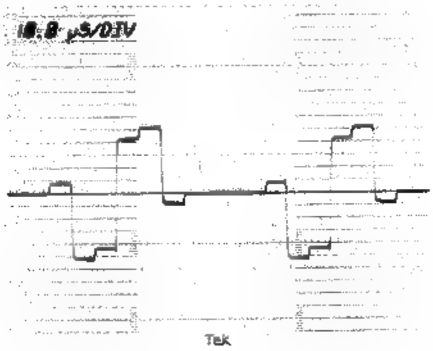
NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board and the CLAMP LEVEL.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board:Extend the AD-104P board with the EX-326 board.
• Test signal: 75% Color Bars
• Switch setting: S1/AD-104P (D14) = COMPONENT
S201-2/SY-199P (M4) = OFF
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

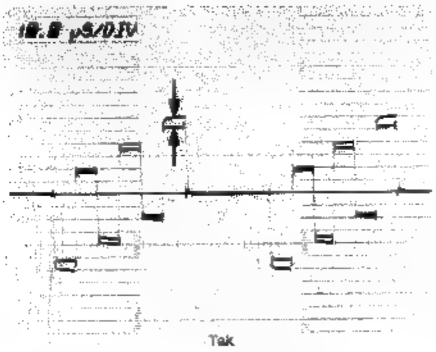
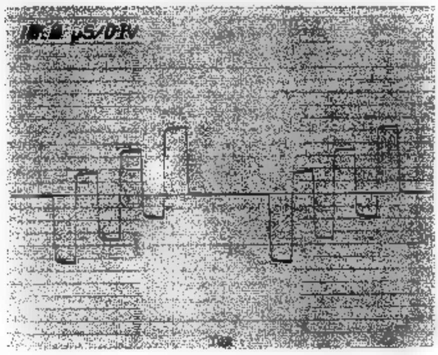
(4-4-5. COMPONENT CHROMA LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Position of fader lever: In the vicinity of the center • Waveform monitor INPUT: CH-B2 MODE: WFM REF : EXT	PGM OUT (COMPONENT R-Y) NG  OK  • Adjust so that the amplitudes of the color bars (R-Y) of input 1 and the built-in color bars (R-Y) become equal.	A BUS: CPNT R-Y GAIN adjustment ⊘ RV118/AD-104P (C5) ■ BUS: CPNT R-Y GAIN adjustment ⊘ RV218/AD-104P (K5)

(4-4-5. COMPONENT CHROMA LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Position of fader lever: In the vicinity of the center • Waveform monitor INPUT: CH-B3 MODE: WFM REF : EXT	PGM OUT (COMPONENT B-Y) NG  OK  • Adjust so that the amplitudes of the color bars (B-Y) of input 1 and the built-in color bars (B-Y) become equal.	A BUS: CPNT B-Y GAIN adjustment ⊘ RV119/AD-104P (B5) B BUS: CPNT B-Y GAIN adjustment ⊘ RV219/AD-104P (K5)

4-4-6. RGBS CHROMA LEVEL Adjustment

FOR UC

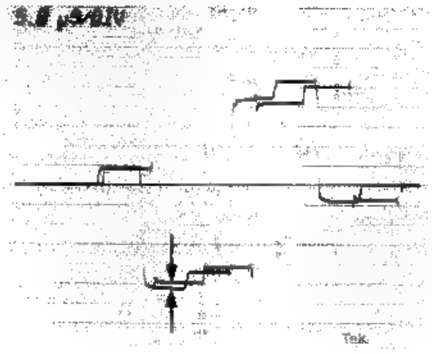
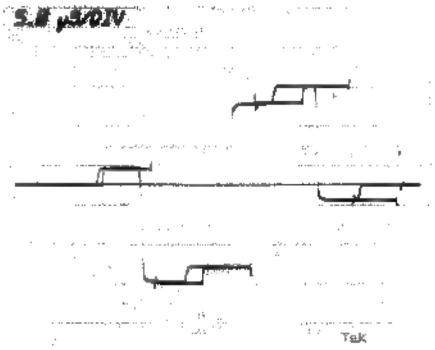
NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board and the CLAMP LEVEL.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104 board with the EX-326 board.
• Test signal: 75% Color Bars
• Switch setting: S201-2/SY-199 (M4) = ON
S4/AD-104 (J14) = R/G/B/S
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER=Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104 (K14) lights.
When adjusting B BUS: D6/AD-104 (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

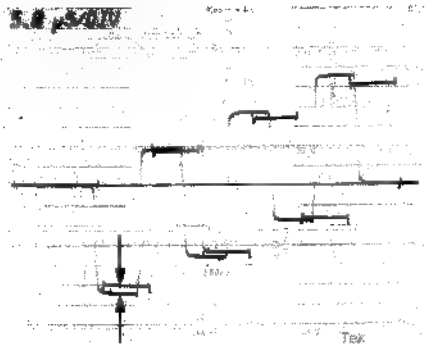
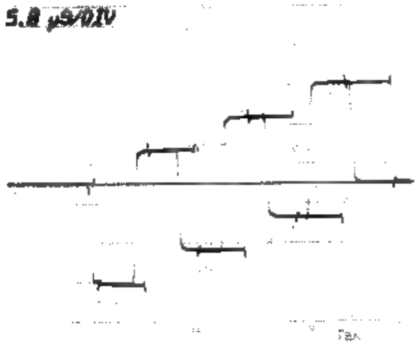
(4-4-6. RGBS CHROMA LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Position of fader lever: In the vicinity of the center • Waveform monitor INPUT : CH-B2 MODE : WFM REF : EXT	PGM OUT (COMPONENT R-Y) NG  OK  • Adjust so that the amplitudes of the color bars (R-Y) of input 1 and the built-in color bars (R-Y) become equal.	RGB R-Y GAIN adjustment ⊘ RV2/AD-104 (F3)

(4-4-6. RGBS CHROMA LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Position of fader lever: In the vicinity of the center	PGM OUT (COMPONENT B-Y) NG  OK 	RGB B-Y GAIN adjustment ⊘ RV3/AD-104 (F3)
• Waveform monitor INPUT : CH-B3 MODE : WFM REF : EXT	• Adjust so that the amplitudes of the color bars (B-Y) of input 1 and the built-in color bars (B-Y) become equal.	

(4-4-6. RGBS CHROMA LEVEL Adjustment)

FOR EK

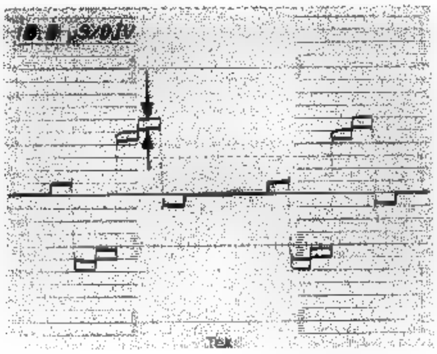
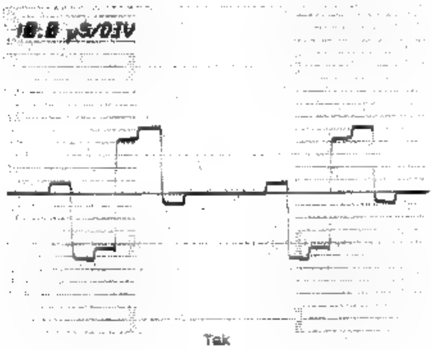
NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board and the CLAMP LEVEL.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board:Extend the AD-104P board with the EX-326 board.
• Test signal: 75% Color Bars
• Switch setting: S201-2/SY-199P (M4) = OFF
S4/AD-104P (J14) = R/G/B/S
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

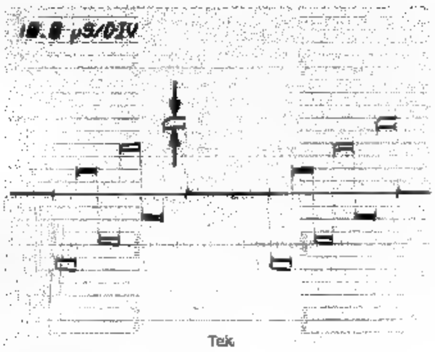
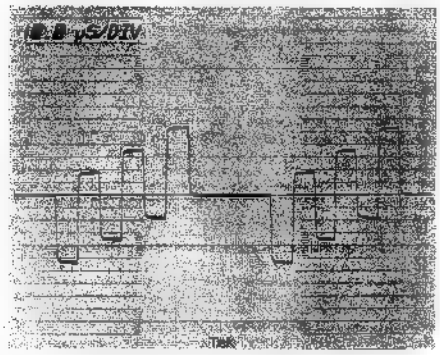
(4-4-6. RGBS CHROMA LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Position of fader lever: In the vicinity of the center • Waveform monitor INPUT : CH-B2 MODE : WFM REF : EXT	PGM OUT (COMPONENT R-Y) NG  OK  • Adjust so that the amplitudes of the color bars (R-Y) of input 1 and the built-in color bars (R-Y) become equal.	RGB R-Y GAIN adjustment ⊘ RV2/AD-104P (F3)

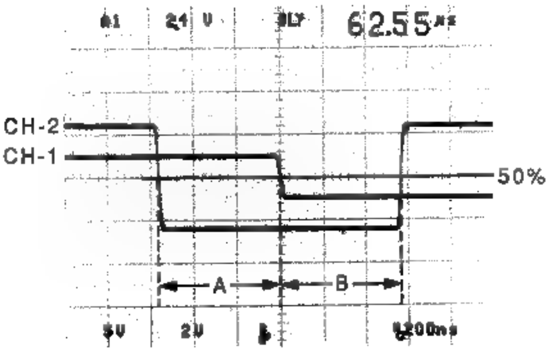
(4-4-6. RGBS CHROMA LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Position of fader lever: In the vicinity of the center • Waveform monitor INPUT: CH-B3 MODE: WFM REF : EXT	PGM OUT (COMPONENT B-Y) NG  OK  • Adjust so that the amplitudes of the color bars (B-Y) of input 1 and the built-in color bars (B-Y) become equal.	RGB B-Y GAIN adjustment ⊘ RV3/AD-104P (F3)

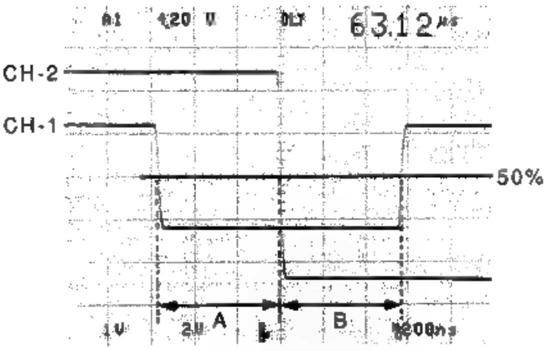
4-4-7. W HD PHASE Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104 board with the EX-326 board. • Test signal: 100% Color Bars • Switch setting: S1/AD-104 (D14) = COMPONENT **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Digital voltmeter	A BUS: TP163/AD-104 (A6) B BUS: TP263/AD-104 (L3) 2.8 V dc	A BUS: VFO BIAS adjustment ⊘ LV101/AD-104 (B6) B BUS: VFO BIAS adjustment ⊘ LV201/AD-104 (M3)
STEP-3 • Oscilloscope MODE : DELAY CH-1 : 5 V/DIV 10 µS/DIV CH-2 : 2 V/DIV 200 mS/DIV TRIG : CH-1	A BUS CH-1: TP156/AD-104 (A9) CH-2: TP158/AD-104 (A8) B BUS CH-1: TP256/AD-104 (M6) CH-2: TP258/AD-104 (M5)  A = B	A BUS: W HD PHASE adjustment ⊘ RV131/AD-104 (A7) B BUS: W HD PHASE adjustment ⊘ RV231/AD-104 (L4)

(4-4-7. W HD PHASE Adjustment)

FOR EK

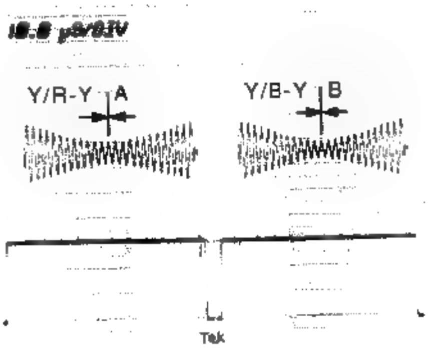
Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104P board with the EX-326 board. • Test signal: 75% Color Bars • Switch setting: S1/AD-104P (D14) = COMPONENT **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Digtal voltmeter	A BUS: TP163/AD-104P (A6) B BUS: TP263/AD-104P (L3) 2.8 V dc	A BUS: VFO BIAS adjustment ⊘ LV101/AD-104P (B6) [illegible] BUS: VFO BIAS adjustment ⊘ LV201/AD-104P (M3)
STEP-3 • Oscilloscope MODE : DELAY CH-1 : 5 V/DIV 10 μS/DIV CH-2 : 2 V/DIV 200 mS/DIV TRIG : CH-1	A BUS CH-1: TP156/AD-104P (A9) CH-2: TP158/AD-104P (A8) B BUS CH-1: TP256/AD-104P (M6) CH-2: TP258/AD-104P (M5)  A1 1.20 V DLY 63.12 μs CH-2 CH-1 50% 1V 2V A B 200ns A = B	A BUS: W HD PHASE adjustment ⊘ RV131/AD-104P (A7) B BUS: W HD PHASE adjustment ⊘ RV231/AD-104P (L4)

4-4-8. COMPONENT Y/C DELAY Adjustment

NOTE: Perform this adjustment after completing all the adjustments for the DA-79/P board.

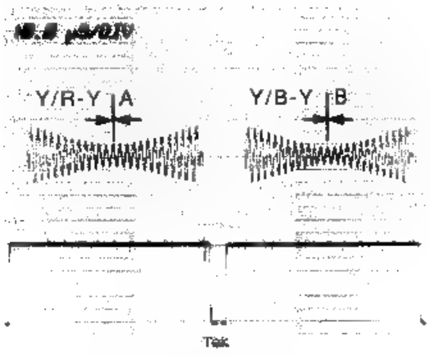
<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104/P board with the EX-326 board.
• Test signal: BOWTIE
• Switch setting: S1/AD-104 or AD-104P (D14) = COMPONENT
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104 or AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104 or AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = 1
5. The signal of A BUS is output at the top of the fader lever.
The signal of B BUS is output at the bottom of the fader lever.
Adjustment can be performed for each bus.

NOTE: Adjust A BUS and ■ BUS in the same way for each bus.</td></tr>
<tr><td>STEP-2

• Waveform monitor
MEASURE : BOWTIE
INPUT : CH-B1 (COMPONENT Y)
CH-B2 (COMPONENT R-Y)
CH-B3 (COMPONENT B-Y)
MODE : WFM
REF : EXT</td><td>CH-B1: PGM OUT (COMPONENT Y)
CH-B2: PGM OUT (COMPONENT R-Y)
CH-B3: PGM OUT (COMPONENT B-Y)

A = 0 ± 20 nS
B = 0 ± 20 nS
• Set the each BOWTIE DIP point A and B on the center marker.</td><td>Y/R-Y DELAY
A BUS: CPNT V DL adjustment
⊘ RV120/AD-104 (C4)
⊘ RV120/AD-104P (C4)

Y/B-Y DELAY
A BUS: CPNT V DL adjustment
⊘ RV125/AD-104 (C4)
⊘ RV125/AD-104P (C4)</td></tr>
</table>

(4-4-8. COMPONENT Y/C DELAY Adjustment)

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Waveform monitor MEASURE : BOWTIE INPUT : CH-B1 (COMPONENT Y) CH-B2 (COMPONENT R-Y) CH-B3 (COMPONENT B-Y) MODE : WFM REF : EXT	CH-B1:PGM OUT (COMPONENT Y) CH-B2:PGM OUT (COMPONENT R-Y) CH-B3:PGM OUT (COMPONENT B-Y)  A = 0 ± 20 nS B = 0 ± 20 nS • Set the each BOWTIE DIP point A and B on the center marker.	Y/R-Y DELAY B BUS: CPNT U DL adjustment ⊘ RV220/AD-104 (L4) ⊘ RV220/AD-104P (L4) Y/B-Y DELAY B BUS: CPNT U DL adjustment ⊘ RV225/AD-104 (K4) ⊘ RV225/AD-104P (K4)

4-4-9. Y/C Input Y LEVEL Adjustment

FOR UC

NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board.

Machine conditions for adjustment	Specifications	Adjusting Point

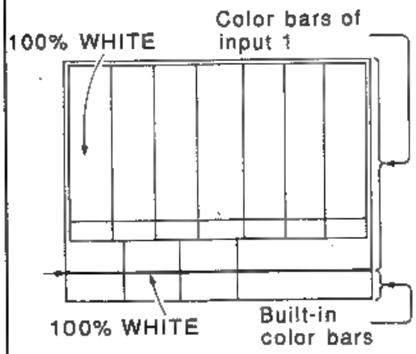
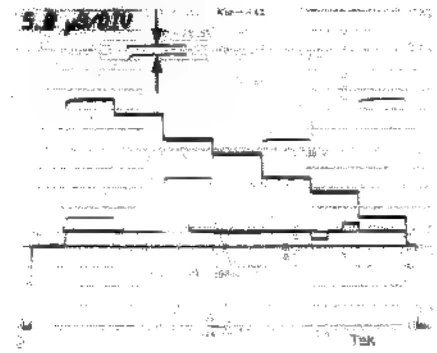
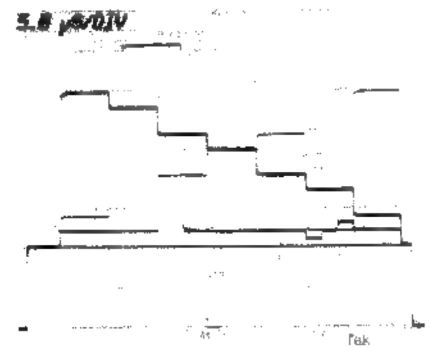
STEP-1

- Connection: Section 4-2-1 Connection
- Extension board: Extend the AD-104 board with the EX-326 board.
- Test signal: 75% Color Bars (100/7.5/77/7.5 Color Bars)
- Switch setting: S1/AD-104 (D14) = Y/C
  S201-2/SY-199 (M4) = ON
- Control panel setting:
  1. PATTERN NUMBER = 4 (REVERSE = OFF)
  2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
  3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
     After completing the above settings, check that the Y signal has been output.
     Test points When adjusting A BUS: D5/AD-104 (K14) lights.
     When adjusting B BUS: D6/AD-104 (K14) lights.
     When the waveform is not displayed
     Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
  4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.

(4-4-9. Y/C Input Y LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Position of the fader lever: Position at which 100% WHITE can be compared.  Color bars of input 1 100% WHITE 100% WHITE Built-in color bars • Waveform monitor INPUT : CH-A MODE : WFM REF : EXT	PGM OUT (Y/C Y or COMPONENT) NG  OK  • Adjust so that there is no difference between the color bars of input 1 and the built-in color bars.	A BUS: SEP Y GAIN adjustment ⊘ RV111/AD-104 (D8) B BUS: SEP Y GAIN adjustment ⊘ RV211/AD-104 (J8)

(4-4-9. Y/C Input Y LEVEL Adjustment)

FOR EK

NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board.

Machine conditions for adjustment	Specifications	Adjusting Point

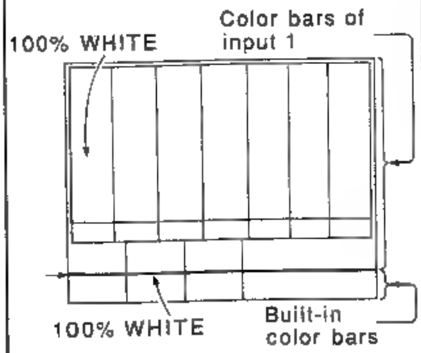
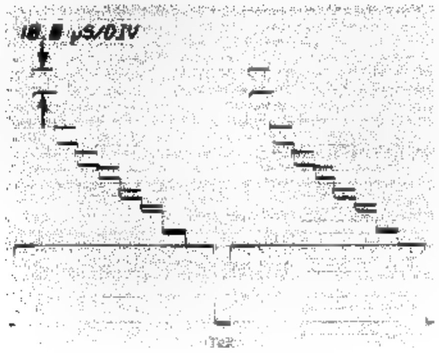
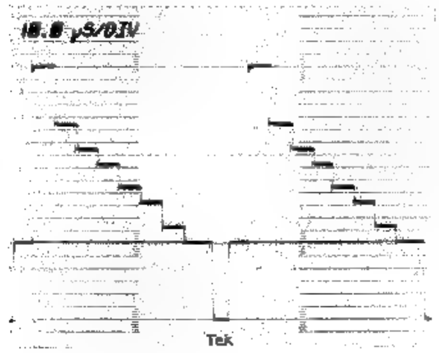
STEP-1

- Connection: Section 4-2-1 Connection
- Extension board: Extend the AD-104P board with the EX-326 board.
- Test signal: 75% Color Bars
- Switch setting: S1/AD-104P (D14) = Y/C
  S201-2/SY-199P (M4) = OFF
- Control panel setting:
  1. PATTERN NUMBER = 4 (REVERSE = OFF)
  2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
  3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
     After completing the above settings, check that the Y signal has been output.
     Test points When adjusting A BUS: D5/AD-104P (K14) lights.
     When adjusting B BUS: D6/AD-104P (K14) lights.
     When the waveform is not displayed
     Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
  4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.

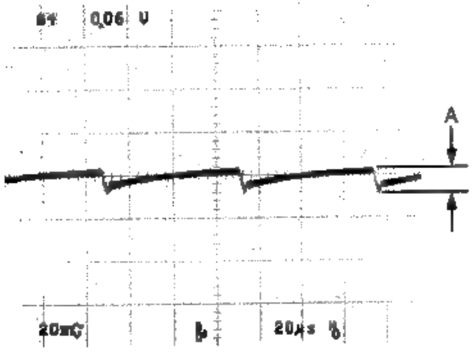
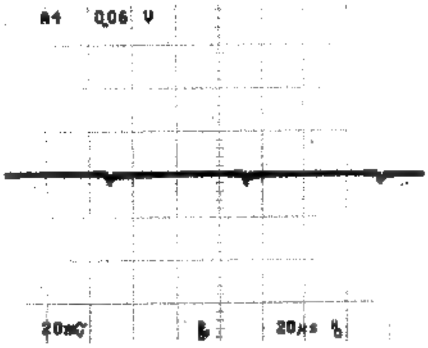
(4-4-9. Y/C Input Y LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 - Position of the fader lever: Position at which 100% WHITE can be compared.  Color bars of input 1 100% WHITE 100% WHITE Built-in color bars - Waveform monitor INPUT: CH-A MODE: WFM REF : EXT	PGM OUT (Y/C Y or COMPONENT) NG  10.0 µS/DIV Tek OK  10.0 µS/DIV Tek - Adjust so that there is no difference between the color bars of input 1 and the built-in color bars.	A BUS: SEP Y GAIN adjustment ⊘ RV111/AD-104P (D8) B BUS: SEP Y GAIN adjustment ⊘ RV211/AD-104P (J8)

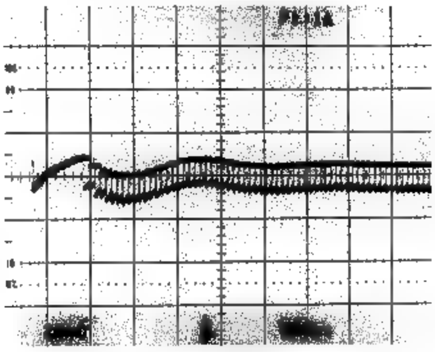
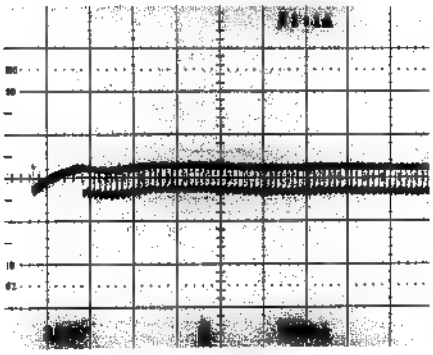
4-4-10. CHROMA DECODER CLOCK FREQUENCY Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104 board with the EX-326 board. • Test signal: 75% Color Bars (100/7.5/77/7.5 Color Bars) • Switch setting: S1/AD-104 (D14) = Y/C • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS = 1, FOREGROUND BUS = 1 **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Oscilloscope CH-1: 20 mV/DIV 20 µS/DIV TRIG: B.B (CH-4)	A BUS: TP123/AD-104 (C8) B BUS: TP223/AD-104 (K8) NG  OK  A = Minimum	A BUS: COLOR F LOCK adjustment ⊘ CV101/AD-104 (C8) B BUS: COLOR F LOCK adjustment ⊘ CV201/AD-104 (K8)

(4-4-10. CHROMA DECODER CLOCK FREQUENCY Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104P board with the EX-326 board. • Test signal: 75% Color Bars • Switch setting: S1/AD-104P (D1) = Y/C • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS = 1, FOREGROUND BUS = 1 **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Oscilloscope CH-1: 20 mV/DIV 500 µS/DIV TRIG: B.B (CH-4)	A BUS: TP123/AD-104P (C8) [illegible] BUS: TP223/AD-104P (K8) NG  OK  • Adjust so that wavefome becomes flat as possible.	A BUS: COLOR F LOCK adjustment ⊘ CV101/AD-104P (C8) B BUS: COLOR F LOCK adjustment ⊘ CV201/AD-104P (K8)

4-4-11. Y/C CHROMA LEVEL Adjustment

FOR UC

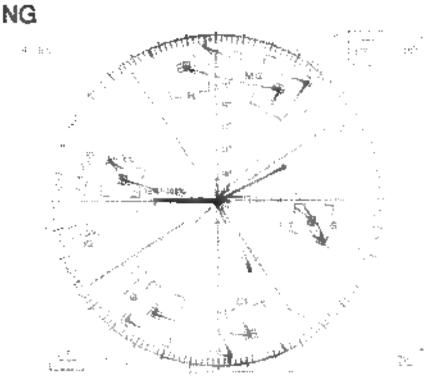
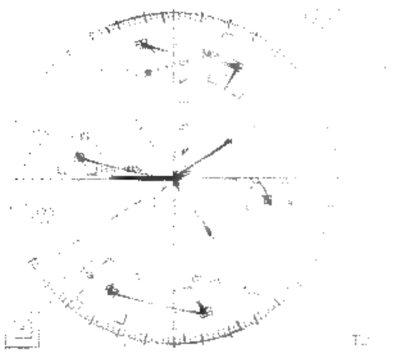
NOTE: Perform this adjustment after completing all the adjustments for the DA-79 board.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104 board with the EX-326 board.
• Test signal: Y/C (S), 75% Color Bars (100/7.5/77/7.5 Color Bars)
• Switch setting: S1/AD-104 (D14) = Y/C
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104 (K14) lights.
When adjusting B BUS: D6/AD-104 (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)
5. The signal of A BUS is output at the top of the fader lever.
The signal of B BUS is output at the bottom of the fader lever.
Adjustment can be performed for each bus.

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

(4-4-11. Y/C CHROMA LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Adjust to mechanical center. A BUS: RV114 B BUS: RV214 • Adjust the phase of the chroma. A BUS: RV113 B BUS: RV213 • Adjust in the vertical direction. A BUS: RV112 B BUS: RV212 • Adjust in the horizontal direction. A BUS: RV115 B BUS: RV215 • Vectorscope L.DISP : VECT INPUT : CH-A FILTER : FLAT REF : EXT	PGM OUT (Y/C C or COMPOSITE) NG  OK  All luminance points should be inside the respective "田" mark on the vectorscope. • Adjust so that both the phase and the level A BUS and B BUS of become equal.	A BUS: SEP C GAIN adjustment ⊘ RV112/AD-104 (C9) CPST & SEP HUE SET adjustment ⊘ RV113/AD-104 (C9) SEP B-Y GAIN adjustment ⊘ RV115/AD-104 (B6) B BUS: SEP C GAIN adjustment ⊘ RV212/AD-104 (K9) CPST & SEP HUE SET adjustment ⊘ RV213/AD-104 (K9) SEP B-Y GAIN adjustment ⊘ RV215/AD-104 (K6)

4-4-11. Y/C CHROMA LEVEL Adjustment

FOR EK

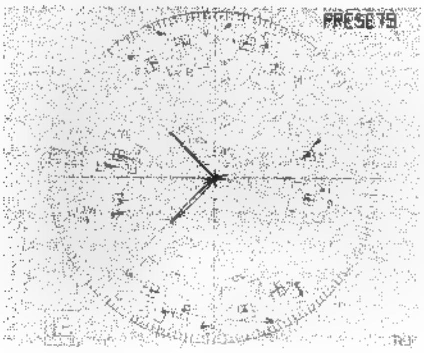
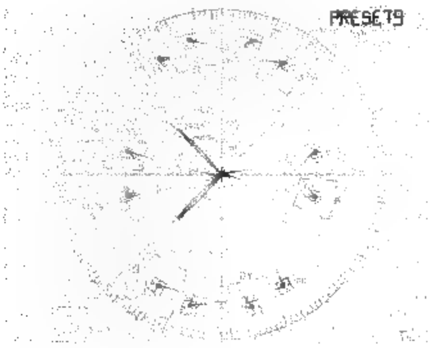
NOTE: Perform this adjustment after completing all the adjustments for the DA-79P board.

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104P board with the EX-326 board.
• Test signal: Y/C (S), 75% Color Bars
• Switch setting: S1/AD-104P (D14) = Y/C
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

(4-4-11. Y/C CHROMA LEVEL Adjustment)

FOR EK

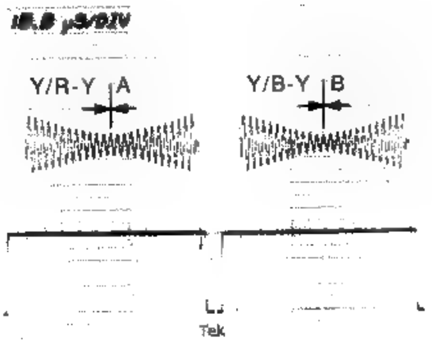
Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 - Adjust to mechanical center. A BUS: RV114 B BUS: RV214 - Adjust the phase of the chroma. A BUS: RV113 B BUS: RV213 - Adjust in the vertical direction. A BUS: RV112 B BUS: RV212 - Adjust in the horizontal direction. A BUS: RV115 B BUS: RV215	PGM OUT (Y/C C or COMPOSITE) NG  OK 	A BUS: SEP C GAIN adjustment ⊘ RV112/AD-104P (C9) CPST & SEP HUE SET adjustment ⊘ RV113/AD-104P (C9) SEP B-Y GAIN adjustment ⊘ RV115/AD-104P (B6) B BUS: SEP C GAIN adjustment ⊘ RV212/AF-104P (K9) CPST & SEP HUE SET adjustment ⊘ RV213/AD-104P (K9) SEP B-Y GAIN adjustment ⊘ RV215/AD-104P (K6)
- Vectorscope L.DISP : VECT INPUT : CH-A FILTER: FLAT REF : EXT	All luminance points should be inside the respective "⊞" mark on the vectorscope. - Adjust so that both the phase and the level A BUS and B BUS of become equal.	

4-4-12. Y/C INPUT Y/C DELAY check

NOTE: Perform this adjustment after completing all the adjustments for the DA-79/79P board.

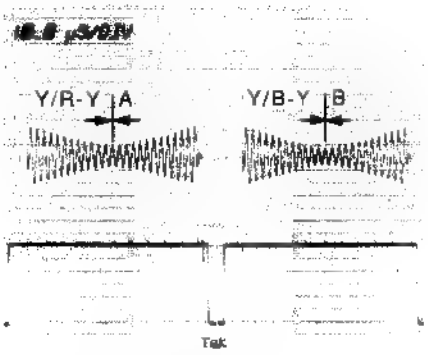
<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104/P board with the EX-326 board.
• Test signal: BOWTIE
• Switch setting: S1/AD-104 or AD-104P (D14) = COMPONENT
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104 or AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104 or AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = 1
5. The signal of A BUS is output at the top of the fader lever.
The signal of B BUS is output at the bottom of the fader lever.
Adjustment can be performed for each bus.

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
<tr><td>STEP-2

• Waveform monitor
MEASURE : BOWTIE
INPUT : CH-B1 (COMPONENT Y)
CH-B2 (COMPONENT R-Y)
CH-B3 (COMPONENT B-Y)
MODE : WFM
REF : EXT</td><td>CH-B1: PGM OUT (COMPONENT Y)
CH-B2: PGM OUT (COMPONENT R-Y)
CH-B3: PGM OUT (COMPONENT B-Y)

A = 0 ± 40 nS
B = 0 ± 40 nS
• Set the each BOWTIE DIP point A and B on the center marker.</td><td>Y/R-Y DELAY
A BUS: CPNT V DL adjustment
⊘ RV120/AD-104 (C4)
⊘ RV120/AD-104P (C4)

Y/B-Y DELAY
A BUS: CPNT V DL adjustment
⊘ RV125/AD-104 (C4)
⊘ RV125/AD-104P (C4)</td></tr>
</table>

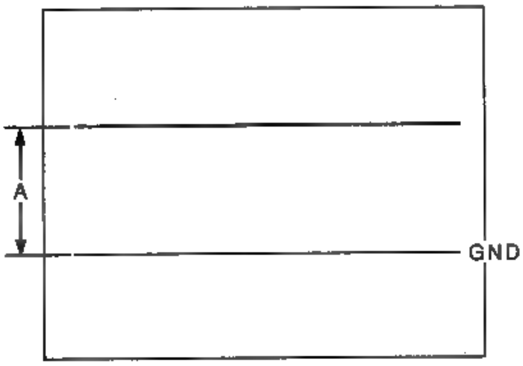
(4-4-12. Y/C INPUT Y/C DELAY check)

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Waveform monitor MEASURE : BOWTIE INPUT : CH-B1 (COMPONENT Y) CH-B2 (COMPONENT R-Y) CH-B3 (COMPONENT B-Y) MODE : WFM REF : EXT	CH-B1:PGM OUT (COMPONENT Y) CH-B2:PGM OUT (COMPONENT R-Y) CH-B3:PGM OUT (COMPONENT B-Y)  A = 0 ± 40 nS B = 0 ± 40 nS • Set the each BOWTIE DIP point A and B on the center marker.	Y/R-Y DELAY B BUS: CPNT V DL adjustment ⊘ RV220/AD-104 (L4) ⊘ RV220/AD-104P (L4) Y/B-Y DELAY A BUS: CPNT V DL adjustment ⊘ RV225/AD-104 (K4) ⊘ RV225/AD-104P (K4)

4-4-13. APC LOCK Adjustment

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104/P board with the EX-326 board.
• Test signal: 75% Color Bars
• Switch setting: S1/AD-104 or AD-104P (D14) = COMPOSITE
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 1

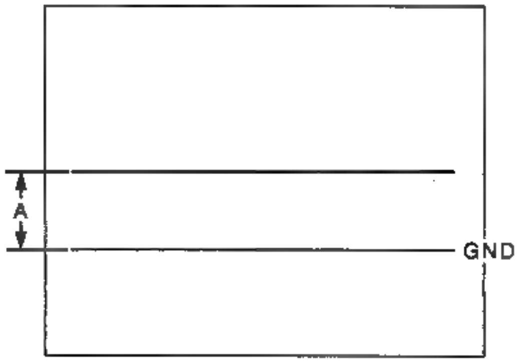
NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
<tr><td>STEP-2

• Digital voltmeter</td><td>A BUS: TP116/AD-104 or AD-104P (F11)
B BUS: TP216/AD-104 or AD-104P (G11)

A = 3.5 to 4.5 V dc

• Turn A BUS: ⊘RV103 or B BUS: ⊘RV203 in the clockwise direction fully and check that the specification above is satisfied.</td><td>A BUS: APC LOCK adjustment
⊘ RV103/AD-104 (F11)
⊘ RV103/AD-104P (F11)

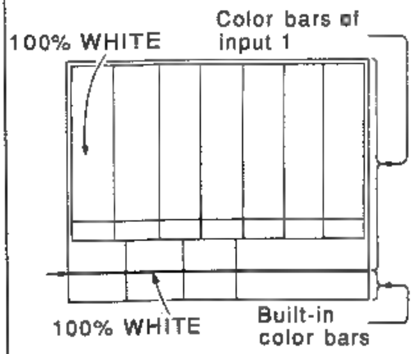
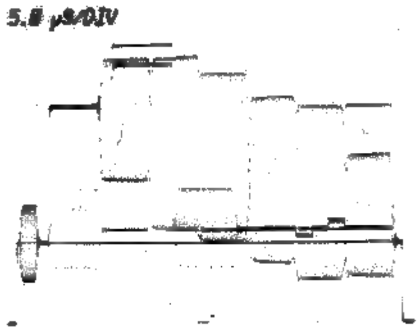
B BUS: APC LOCK adjustment
⊘ RV203/AD-104 (G11)
⊘ RV203/AD-104P (G11)</td></tr>
</table>

(4-4-13. APC LOCK Adjustment)

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Digital voltmeter	A BUS: TP116/AD-104 or AD-104P (F11) B BUS: TP216/AD-104 or AD-104P (G11)  A = Approx. 2.2 V dc • Turn A BUS: ⊘RV103 or B BUS: ⊘RV203 in the counterclockwise direction fully until the level is drawn into the vicinity of 2.2 V. (color lock condition)	A BUS: APC LOCK adjustment ⊘ RV103/AD-104 (F11) ⊘ RV103/AD-104P (F11) B BUS: APC LOCK adjustment ⊘ RV203/AD-104 (G11) ⊘ RV203/AD-104P (G11)
STEP-4 • Disconnect the VIDEO IN BNC connector. • Digital voltmeter	A BUS: TP116/AD-104 or AD-104P (F11) B BUS: TP216/AD-104 or AD-104P (G11) • Check that the level becomes approximately 0 V, re-connect the BNC connector of VIDEO IN1 and check that the level becomes approximately 2.2 V dc again.	(Check)

4-4-14. COMPOSITE Y LEVEL Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104 board with the EX-326 board. • Test signal: 75% Color Bars (100/7.5/77/7.5 Color Bars) • Switch setting: S1/AD-104 (D14) = COMPOSITE S201-2/SY-199 (M4) = ON • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS =1, FOREGROUND BUS = 2 After completing the above settings, check that the Y signal has been output. Test points When adjusting A BUS: D5/AD-104 (K14) lights. When adjusting B BUS: D6/AD-104 (K14) lights. When the waveform is not displayed Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus. 4. FOREGROUND BUS = INT VIDEO (COL BAR) **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Position of fader lever: Position at which 100% WHITE can be compared.  Color bars of input 1 100% WHITE 100% WHITE Built-in color bars • Waveform monitor INPUT: CH-A MODE: WFM REF : EXT	PGM OUT (COMPONENT Y or COMPOSITE)  • Adjust so that there is no difference between the color bars of input 1 and the built-in color bars.	A BUS: CPST Y GAIN adjustment ⊘ RV101/AD-104 (E12) B BUS: CPST Y GAIN adjustment ⊘ RV201/AD-104 (H12)

(4-4-14. COMPOSITE Y LEVEL Adjustment)

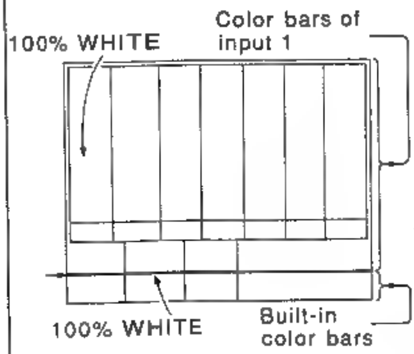
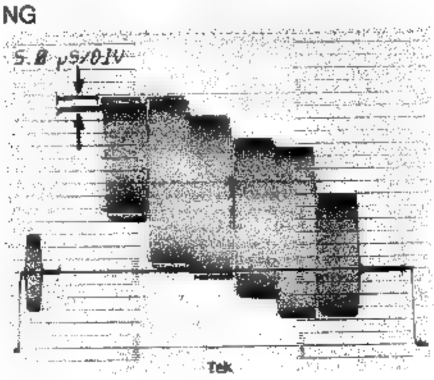
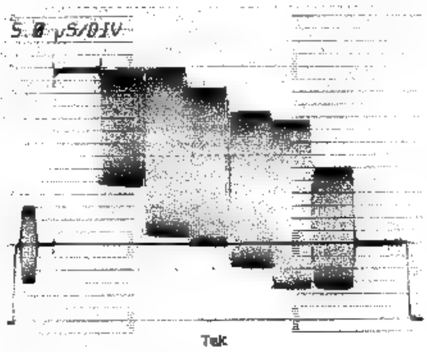
FOR EK

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjusting Point</th></tr>
<tr><td colspan="3">STEP-1
• Connection: Section 4-2-1 Connection
• Extension board: Extend the AD-104P board with the EX-326 board.
• Test signal: 75% Color Bars (100/7.5/77/7.5 Color Bars)
• Switch setting: S1/AD-104P (D1) = COMPOSITE
S201-2/SY-199P (M4) = OFF
• Control panel setting:
1. PATTERN NUMBER = 4 (REVERSE = OFF)
2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top.
3. BACKGROUND BUS = 1, FOREGROUND BUS = 2
After completing the above settings, check that the Y signal has been output.
Test points When adjusting A BUS: D5/AD-104P (K14) lights.
When adjusting B BUS: D6/AD-104P (K14) lights.
When the waveform is not displayed
Press the AUTO TRANS button and check that the Y signal has been output at the test point of the adjusted bus.
4. FOREGROUND BUS = INT VIDEO (COL BAR)

NOTE: Adjust A BUS and B BUS in the same way for each bus.</td></tr>
</table>

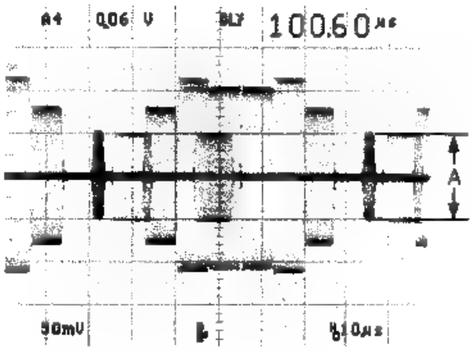
(4-4-14. COMPOSITE Y LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-2 • Position of fader lever: Position at which 100% WHITE can be compared.  Color bars of input 1 100% WHITE 100% WHITE Built-in color bars • Waveform monitor INPUT: CH-A MODE: WFM REF : EXT	PGM OUT (COMPONENT Y or COMPOSITE) NG  OK  • Adjust so that there is no difference between the color bars of input 1 and the built-in color bars.	A BUS: CPST Y GAIN adjustment ⊘ RV101/AD-104P (E12) B BUS: CPST Y GAIN adjustment ⊘ RV201/AD-104P (H12)

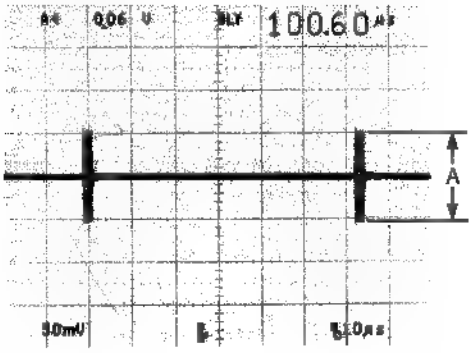
4-4-15. COMPOSITE CHROMA LEVEL Adjustment

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104 board with the EX-326 board. • Test signal: 75% Color Bars (100/7.5/77/7.5 Color Bars) • Switch setting: S1/AD-104 (D14) = COMPOSITE S201-2/SY-199 (M4) = ON • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS = 1, FOREGROUND BUS = 1 **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Oscilloscope CH-1: 50 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	A BUS: TP122/AD-104 (B8) B BUS: TP222/AD-104 (J8)  A = 100 ± 5 mV p-p (A: Burst amplitude)	A BUS: CPST C GAIN adjustment ⊘ RV102/AD-104 (E12) B BUS: CPST C GAIN adjustment ⊘ RV202/AD-104 (H12)

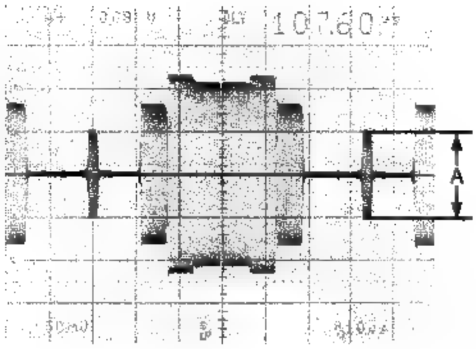
(4-4-15. COMPOSITE CHROMA LEVEL Adjustment)

FOR UC

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Disconnect the VIDEO IN Connector. • Oscilloscope CH-1: 50 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	A BUS: TP122/AD-104 (B8) B BUS: TP222/AD-104 (J8)  A = 100 ± 5 mV p-p • After adjusting to the above specification, connect the VIDEO IN connector.	A BUS: INT BURST LEVEL adjustment ⊘ RV116/AD-104 (C11) B BUS: INT BURST LEVEL adjustment ⊘ RV216/AD-104 (K11)

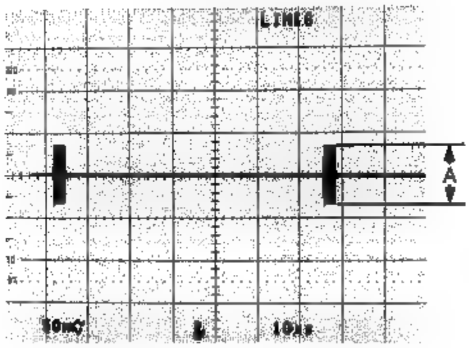
(4-4-15. COMPOSITE CHROMA LEVEL Adjustment)

FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-1 • Connection: Section 4-2-1 Connection • Extension board: Extend the AD-104P board with the EX-326 board. • Test signal: 75% Color Bars • Switch setting: S1/AD-104P (D14) = COMPOSITE S201-2/SY-199P (M4) = OFF • Control panel setting: 1. PATTERN NUMBER = 4 (REVERSE = OFF) 2. FADER LEVER = Move it fully to the top and bottom several times and set it at the top. 3. BACKGROUND BUS = 1, FOREGROUND BUS = 1 **NOTE:** Adjust A BUS and B BUS in the same way for each bus.		
STEP-2 • Oscilloscope CH-1: 50 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	A BUS: TP122/AD-104P (B8) B BUS: TP222/AD-104P (J8)  A = 100 ± 5 mV p-p (A: Burst amplitude)	A BUS: CPST C GAIN adjustment ⊘ RV102/AD-104P (E12) B BUS: CPST C GAIN adjustment ⊘ RV202/AD-104P (H12)

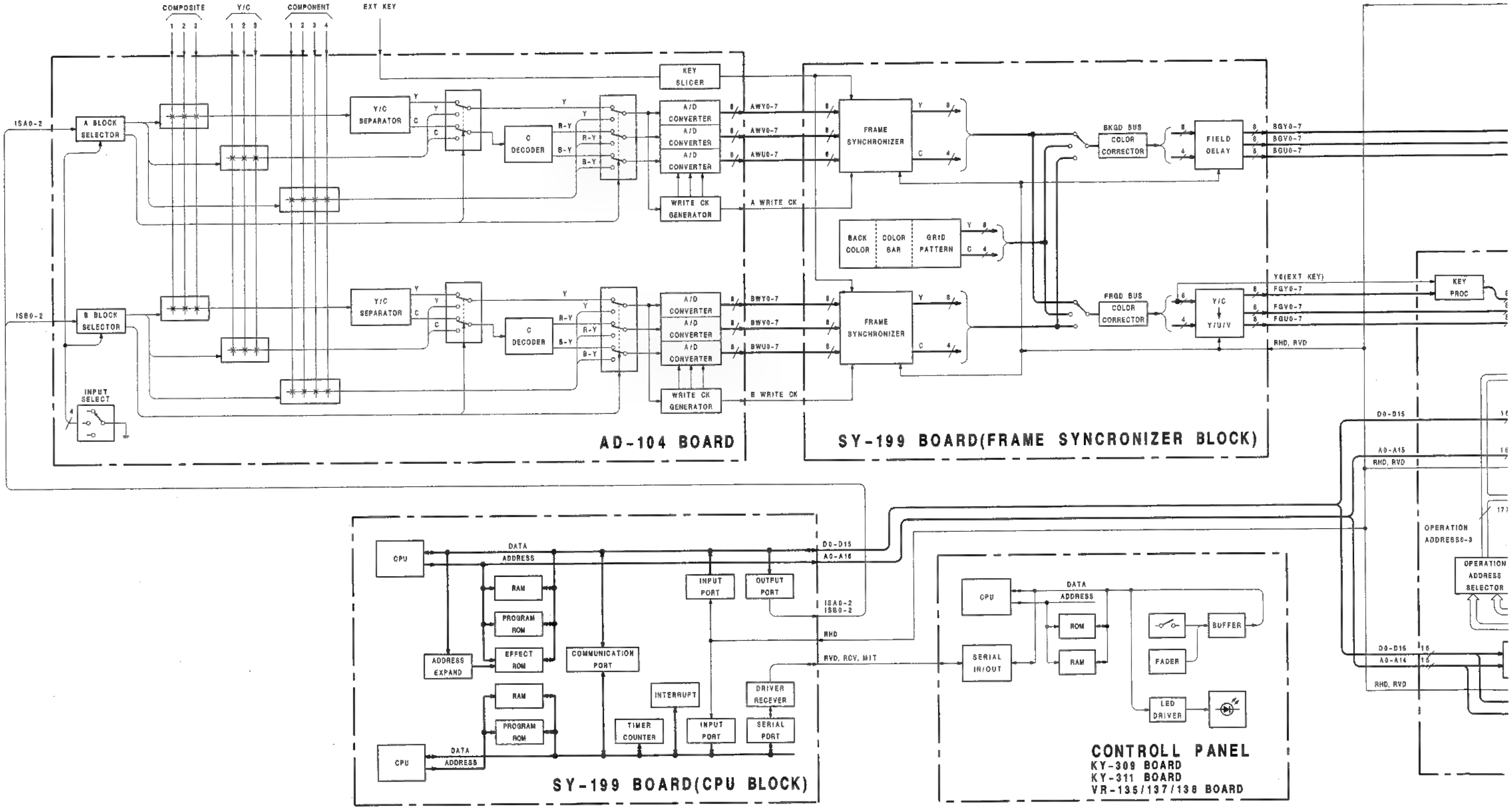
(4-4-15. COMPOSITE CHROMA LEVEL Adjustment)

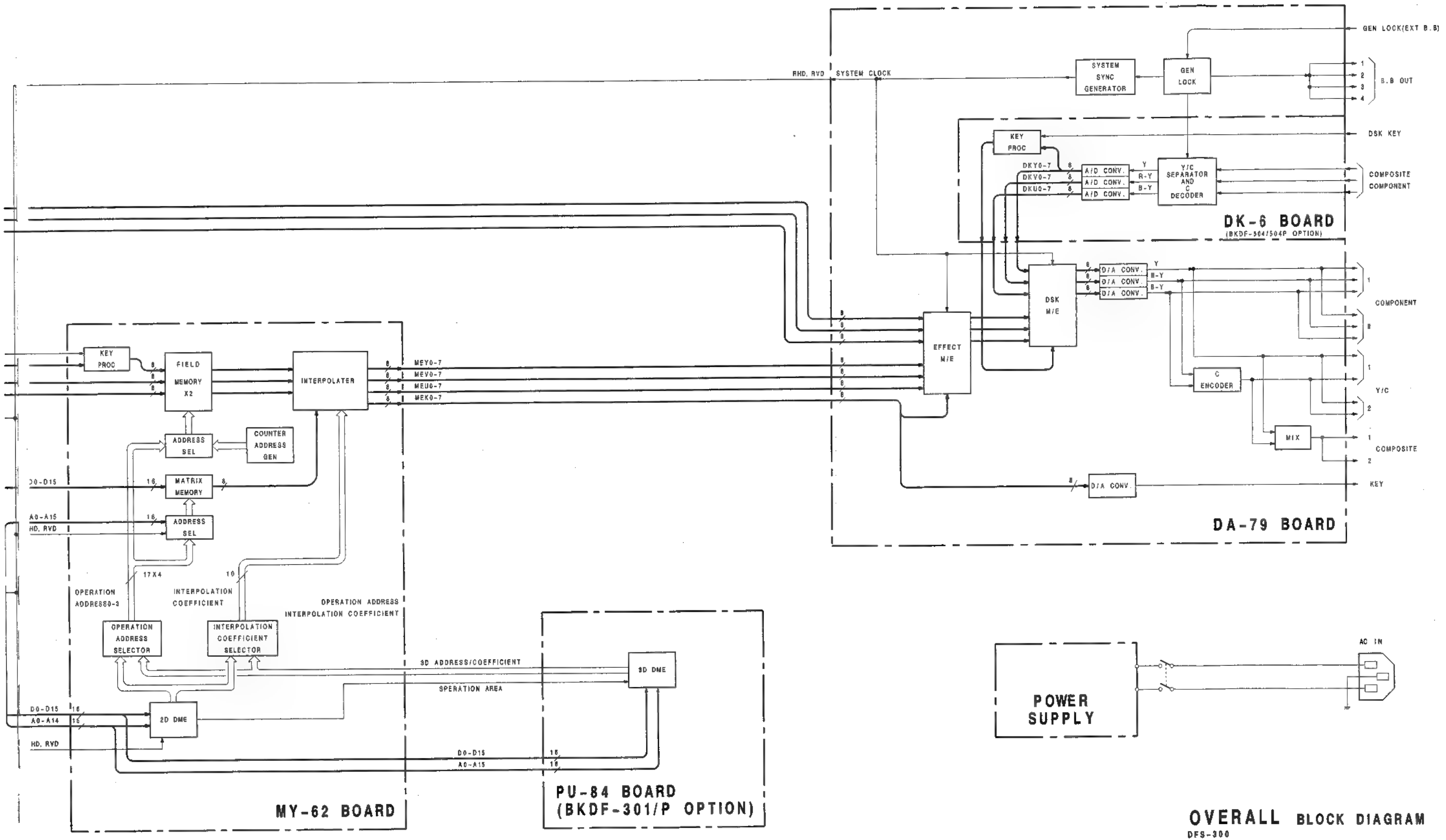
FOR EK

Machine conditions for adjustment	Specifications	Adjusting Point
STEP-3 • Disconnect the VIDEO IN Connector. • Oscilloscope CH-1: 50 mV/DIV 10 µS/DIV TRIG: B.B (CH-4)	A BUS: TP122/AD-104P (B8) B BUS: TP222/AD-104P (J8)  A = 70 ± 5 mV p-p • After adjusting to the above specification, connect the VIDEO IN connector.	A BUS: INT BURST LEVEL adjustment ⊘ RV116/AD-104P (C11) B BUS: INT BURST LEVEL adjustment ⊘ RV216/AD-104P (K11)

SECTION 5
BLOCK DIAGRAMS

OVERALL

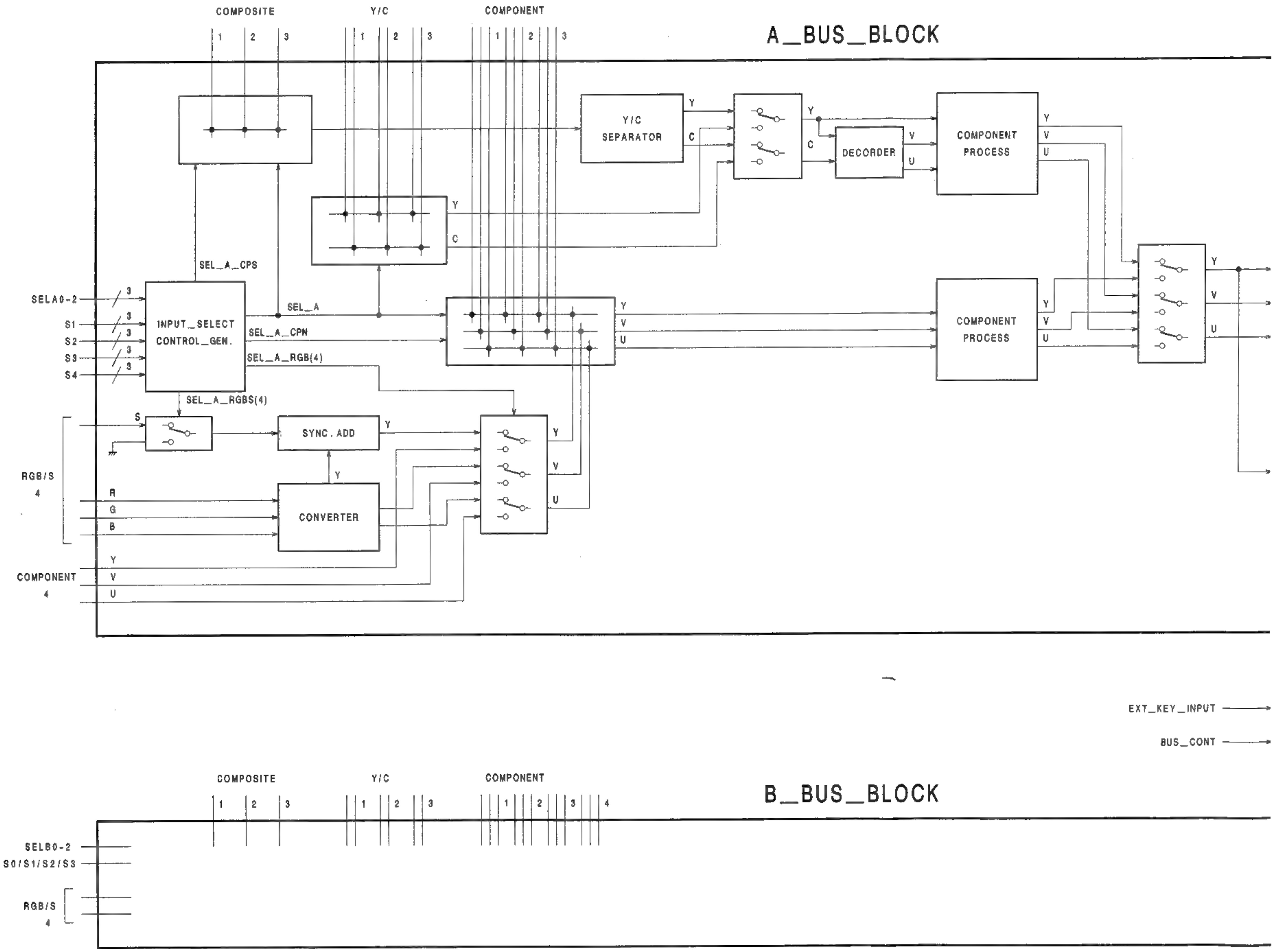

COMPOSITE
1 2 3
Y/C
1 2 3
COMPONENT
1 2 3 4
EXT KEY
ISA0-2
A BLOCK SELECTOR
ISB0-2
B BLOCK SELECTOR
INPUT SELECT
4
Y/C SEPARATOR
Y
C
C DECODER
R-Y
B-Y
KEY SLICER
A/D CONVERTER
WRITE CK GENERATOR
8
AWY0-7
AWV0-7
AWU0-7
A WRITE CK
BWY0-7
BWV0-7
BWU0-7
B WRITE CK
AD-104 BOARD
FRAME SYNCHRONIZER
BACK COLOR
COLOR BAR
GRID PATTERN
BKGD BUS COLOR CORRECTOR
FRGD BUS COLOR CORRECTOR
FIELD DELAY
Y/C ↓ Y/U/V
6
4
BGY0-7
BGV0-7
BGU0-7
Y0(EXT KEY)
FGY0-7
FGV0-7
FGU0-7
RHD, RVD
SY-199 BOARD(FRAME SYNCRONIZER BLOCK)
KEY PROC
D0-D15
A0-A15
RHD, RVD
16
17
OPERATION ADDRESS0-3
OPERATION ADDRESS SELECTOR
D0-D15
A0-A14
16
15
RHD, RVD
CPU
DATA
ADDRESS
RAM
PROGRAM ROM
EFFECT ROM
ADDRESS EXPAND
COMMUNICATION PORT
INPUT PORT
OUTPUT PORT
INTERRUPT
TIMER COUNTER
DRIVER RECEVER
SERIAL PORT
D0-D15
A0-A15
ISA0-2
ISB0-2
RHD
RVD, RCV, MIT
SY-199 BOARD(CPU BLOCK)
CPU
DATA
ADDRESS
ROM
RAM
SERIAL IN/OUT
BUFFER
FADER
LED DRIVER
CONTROLL PANEL
KY-309 BOARD
KY-311 BOARD
VR-135/137/138 BOARD

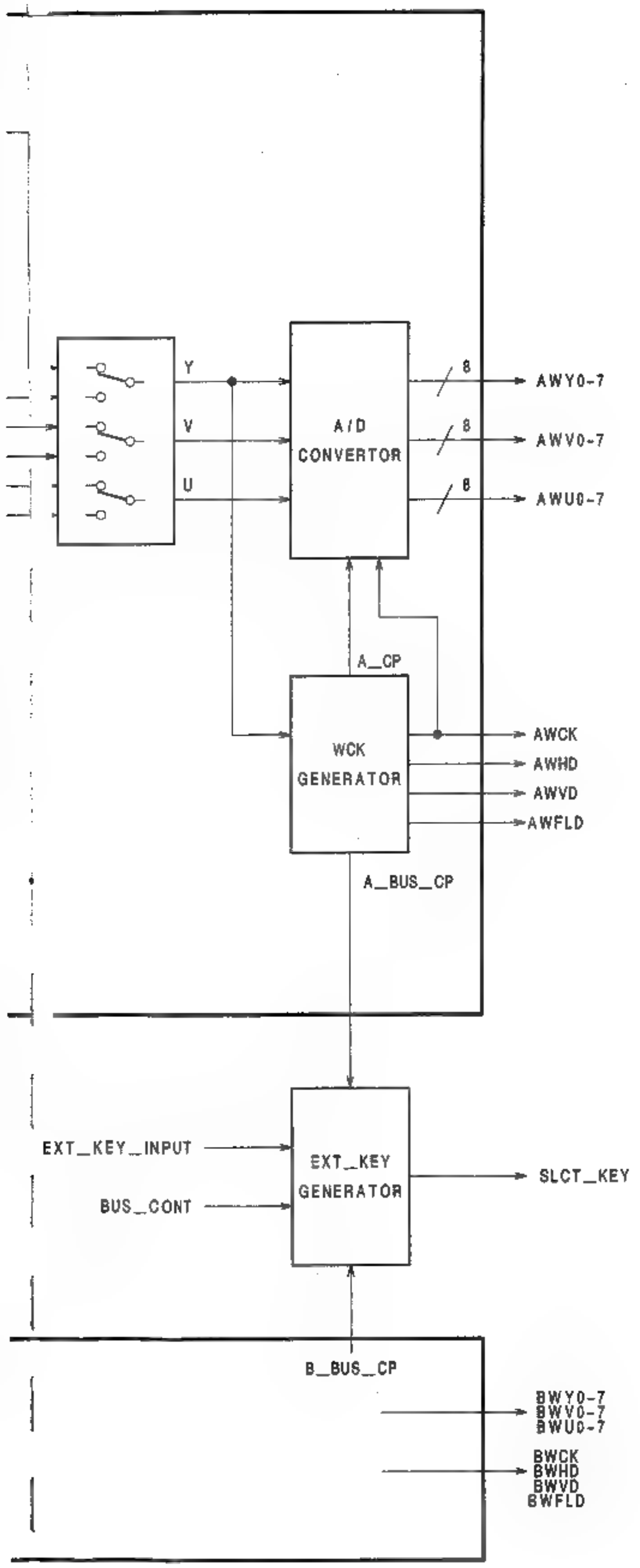

GEN LOCK(EXT B.B)
RHD, RVD
SYSTEM CLOCK
SYSTEM SYNC GENERATOR
GEN LOCK
1
2
3
4
B.B OUT
DSK KEY
KEY PROC
DKY0-7
DKV0-7
DKU0-7
8
A/D CONV.
A/D CONV.
A/D CONV.
Y
R-Y
B-Y
Y/C SEPARATOR AND C DECODER
COMPOSITE
COMPONENT
DK-6 BOARD
(BKDF-504/504P OPTION)
EFFECT M/E
DSK M/E
D/A CONV.
D/A CONV.
D/A CONV.
Y
R-Y
B-Y
COMPONENT
1
2
C ENCODER
Y/C
1
2
MIX
COMPOSITE
1
2
D/A CONV.
KEY
DA-79 BOARD
KEY PROC
FIELD MEMORY X2
INTERPOLATER
MEY0-7
MEV0-7
MEU0-7
MEK0-7
ADDRESS SEL
COUNTER ADDRESS GEN
D0-D15
16
MATRIX MEMORY
8
A0-A15
HD, RVD
16
ADDRESS SEL
17X4
10
OPERATION ADDRESS0-3
INTERPOLATION COEFFICIENT
OPERATION ADDRESS
INTERPOLATION COEFFICIENT
OPERATION ADDRESS SELECTOR
INTERPOLATION COEFFICIENT SELECTOR
3D ADDRESS/COEFFICIENT
SPERATION AREA
D0-D15
A0-A14
16
15
2D DME
HD, RVD
D0-D15
A0-A15
16
16
3D DME
MY-62 BOARD
PU-84 BOARD
(BKDF-301/P OPTION)
POWER SUPPLY
AC IN

OVERALL BLOCK DIAGRAM

DFS-300
DFS-300P

AD-104;A/D Converter

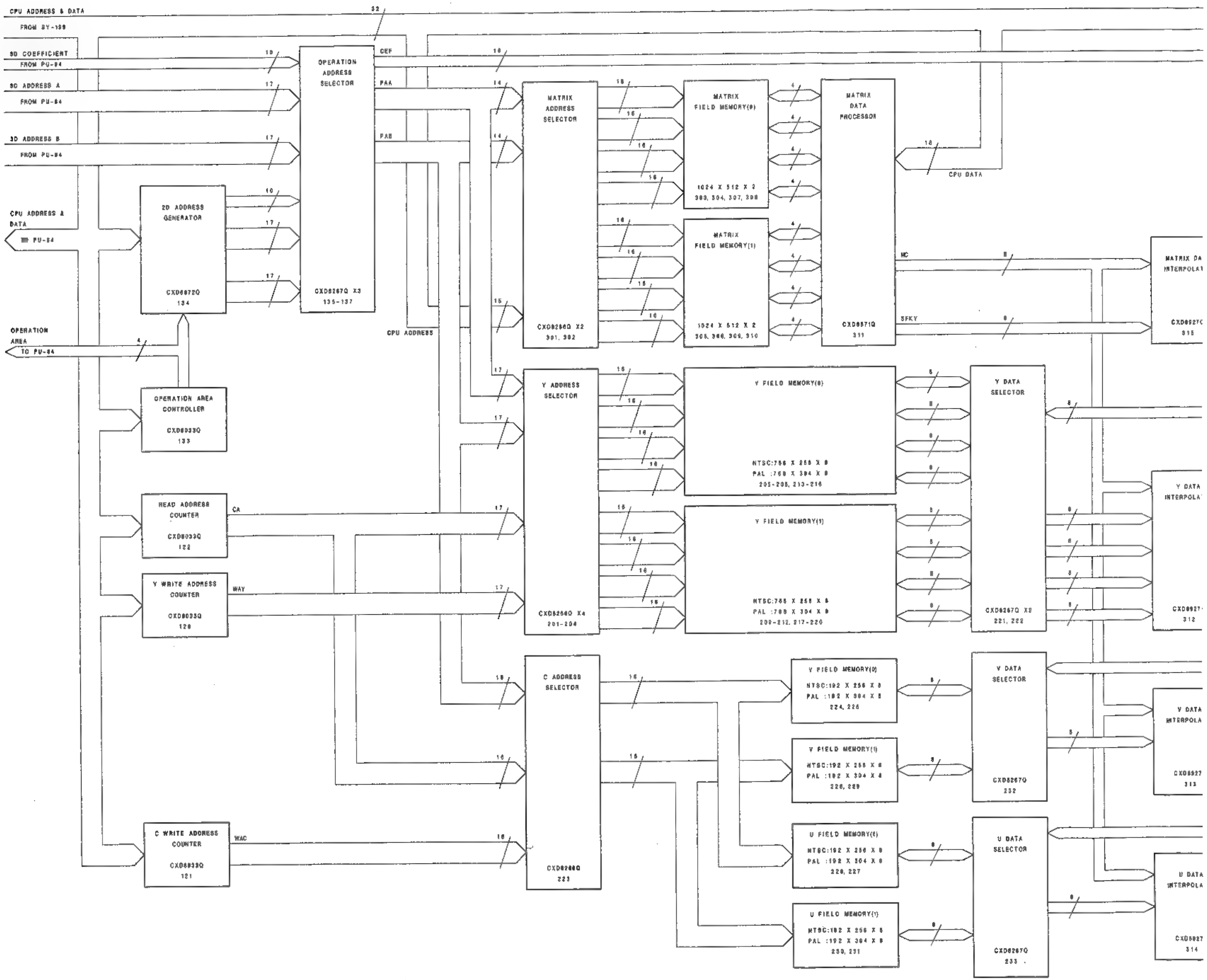

A_BUS_BLOCK
COMPOSITE
1 2 3
Y/C
1 2 3
COMPONENT
1 2 3
Y/C SEPARATOR
Y
C
DECORDER
V
U
COMPONENT PROCESS
COMPONENT PROCESS
Y
V
U
SEL_A_CPS
SELA0-2
S1
S2
S3
S4
3
INPUT_SELECT CONTROL_GEN.
SEL_A
SEL_A_CPN
SEL_A_RGB(4)
SEL_A_RGBS(4)
S
SYNC. ADD
CONVERTER
RGB/S
4
R
G
B
COMPONENT
4
Y
V
U
EXT_KEY_INPUT
BUS_CONT
B_BUS_BLOCK
COMPOSITE
1 2 3
Y/C
1 2 3
COMPONENT
1 2 3 4
SELB0-2
S0/S1/S2/S3
RGB/S
4

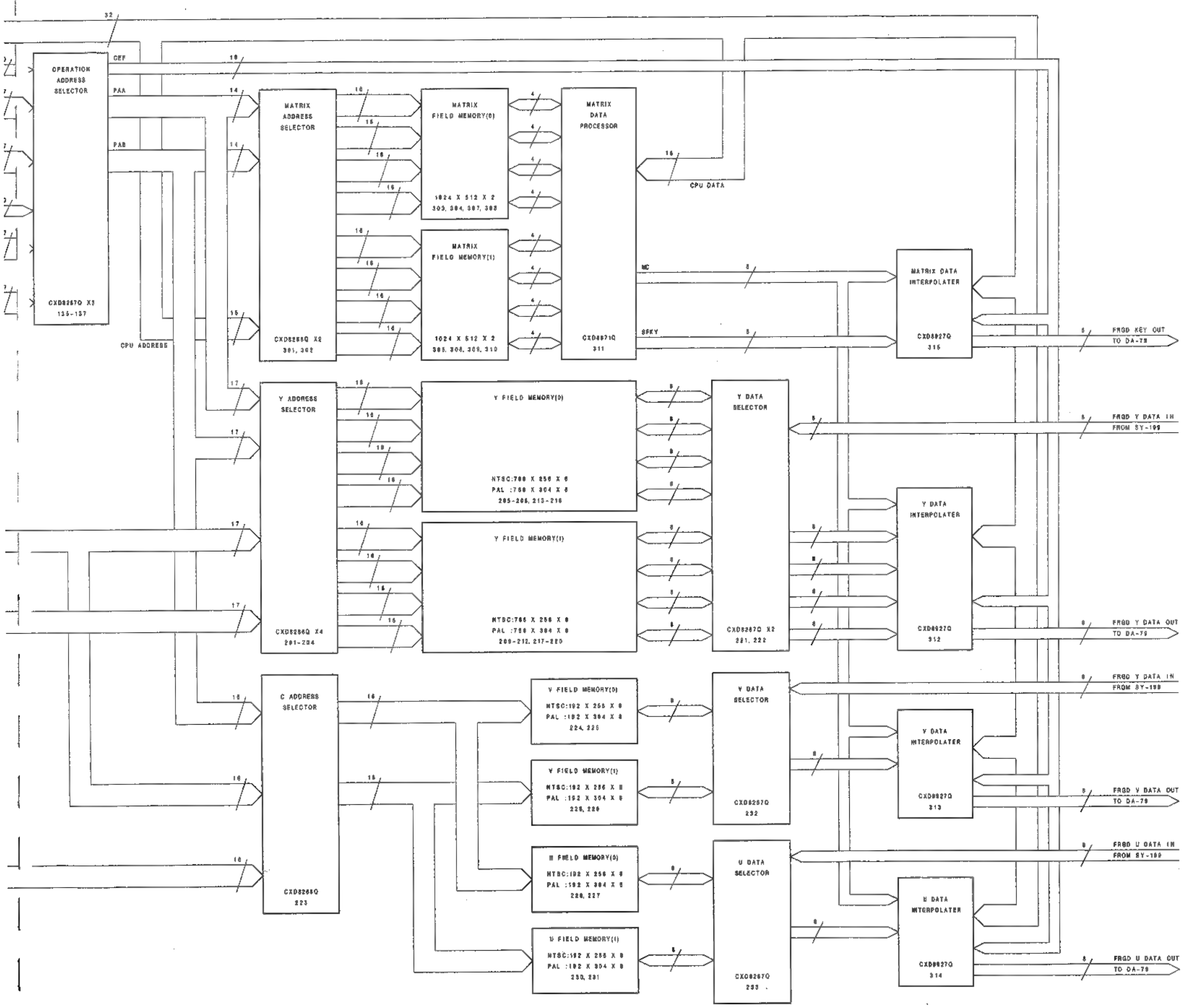

Y
V
U
A/D CONVERTOR
8
8
8
AWY0-7
AWV0-7
AWU0-7
A_CP
WCK GENERATOR
AWCK
AWHD
AWVD
AWFLD
A_BUS_CP
EXT_KEY_INPUT
BUS_CONT
EXT_KEY GENERATOR
SLCT_KEY
B_BUS_CP
BWY0-7
BWV0-7
BWU0-7
BWCK
BWHD
BWVD
BWFLD

AD-104 BLOCK DIAGRAM

DFS-300
DFS-300P

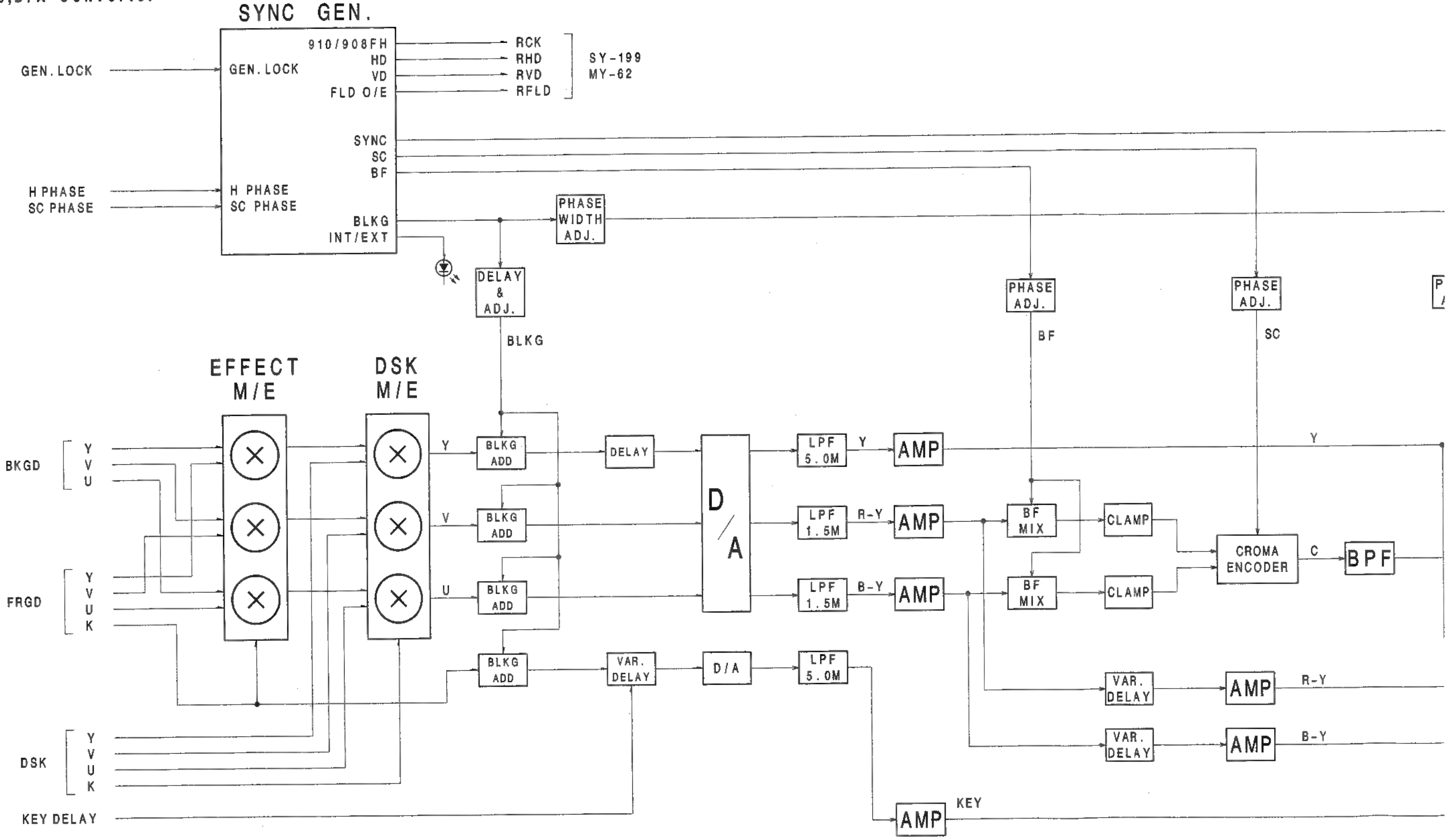
MY-62;Field Memory

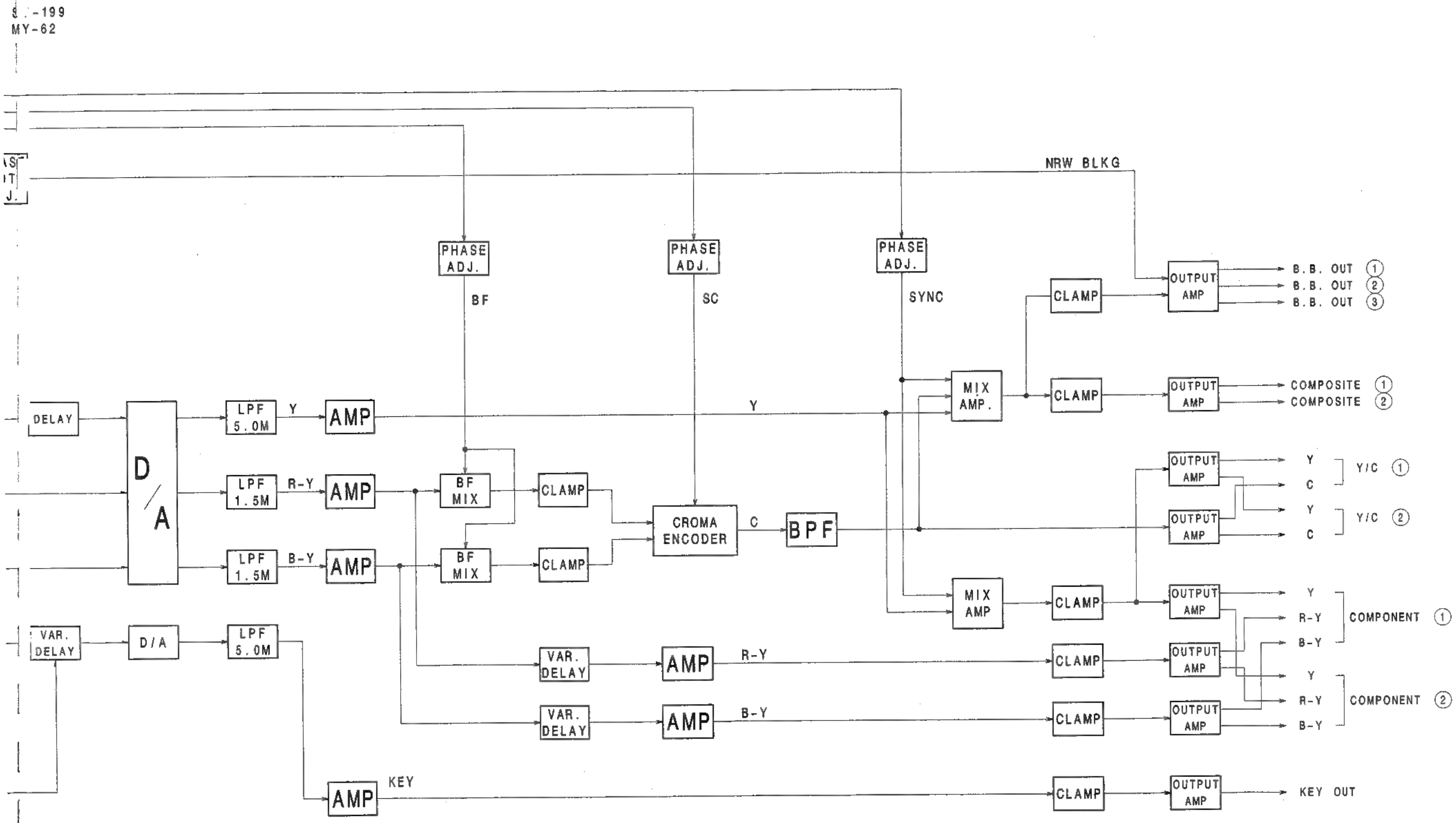

CPU ADDRESS & DATA
FROM SY-199
3D COEFFICIENT
FROM PU-84
3D ADDRESS A
FROM PU-84
3D ADDRESS B
FROM PU-84
CPU ADDRESS & DATA
TO PU-84
OPERATION AREA
TO PU-84
32
19
17
17
10
17
17
4
OPERATION ADDRESS SELECTOR
CXD8267Q X3
135-137
CEF
PAA
PAB
CPU ADDRESS
2D ADDRESS GENERATOR
CXD8872Q
134
OPERATION AREA CONTROLLER
CXD8033Q
133
READ ADDRESS COUNTER
CXD8033Q
122
CA
Y WRITE ADDRESS COUNTER
CXD8033Q
120
WAY
C WRITE ADDRESS COUNTER
CXD8033Q
121
WAC
MATRIX ADDRESS SELECTOR
CXD8266Q X2
301, 302
MATRIX FIELD MEMORY(0)
1024 X 512 X 2
303, 304, 307, 308
MATRIX FIELD MEMORY(1)
1024 X 512 X 2
305, 306, 309, 310
MATRIX DATA PROCESSOR
CXD8871Q
311
CPU DATA
MC
SFKY
MATRIX DA
INTERPOLAT
CXD8927C
315
Y ADDRESS SELECTOR
CXD8266Q X4
201-204
Y FIELD MEMORY(0)
NTSC:768 X 256 X 8
PAL :768 X 304 X 8
205-208, 213-216
Y FIELD MEMORY(1)
NTSC:768 X 256 X 8
PAL :768 X 304 X 8
209-212, 217-220
Y DATA SELECTOR
CXD8267Q X2
221, 222
Y DATA
INTERPOLA
CXD8927
312
C ADDRESS SELECTOR
CXD8266Q
223
V FIELD MEMORY(0)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
224, 225
V FIELD MEMORY(1)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
228, 229
U FIELD MEMORY(0)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
226, 227
U FIELD MEMORY(1)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
230, 231
V DATA SELECTOR
CXD8267Q
232
V DATA
INTERPOLA
CXD8927
313
U DATA SELECTOR
CXD8267Q
233
U DATA
INTERPOLA
CXD8927
314


32
CEF
PAA
PAB
OPERATION ADDRESS SELECTOR
CXD8267Q X3
135-137
CPU ADDRESS
MATRIX ADDRESS SELECTOR
CXD8266Q X2
301, 302
MATRIX FIELD MEMORY(0)
1024 X 512 X 2
303, 304, 307, 308
MATRIX FIELD MEMORY(1)
1024 X 512 X 2
305, 306, 309, 310
MATRIX DATA PROCESSOR
CXD8871Q
311
CPU DATA
MC
SFKY
MATRIX DATA INTERPOLATER
CXD8927Q
315
FRGD KEY OUT
TO DA-79
Y ADDRESS SELECTOR
CXD8266Q X4
201-204
Y FIELD MEMORY(0)
NTSC:768 X 256 X 8
PAL :768 X 304 X 8
205-208, 213-216
Y FIELD MEMORY(1)
NTSC:768 X 256 X 8
PAL :768 X 304 X 8
209-212, 217-220
Y DATA SELECTOR
CXD8267Q X2
221, 222
FRGD Y DATA IN
FROM SY-199
Y DATA INTERPOLATER
CXD8927Q
312
FRGD Y DATA OUT
TO DA-79
C ADDRESS SELECTOR
CXD8266Q
223
V FIELD MEMORY(0)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
224, 225
V FIELD MEMORY(1)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
228, 229
U FIELD MEMORY(0)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
226, 227
U FIELD MEMORY(1)
NTSC:192 X 256 X 8
PAL :192 X 304 X 8
230, 231
V DATA SELECTOR
CXD8267Q
232
FRGD Y DATA IN
FROM SY-199
V DATA INTERPOLATER
CXD8927Q
313
FRGD V DATA OUT
TO DA-79
U DATA SELECTOR
CXD8267Q
233
FRGD U DATA IN
FROM SY-199
U DATA INTERPOLATER
CXD8927Q
314
FRGD U DATA OUT
TO DA-79
16
14
15
17
4
8

MY-62 BLOCK DIAGRAM
DFS-300
DFS-300P

DA-79;D/A Converter

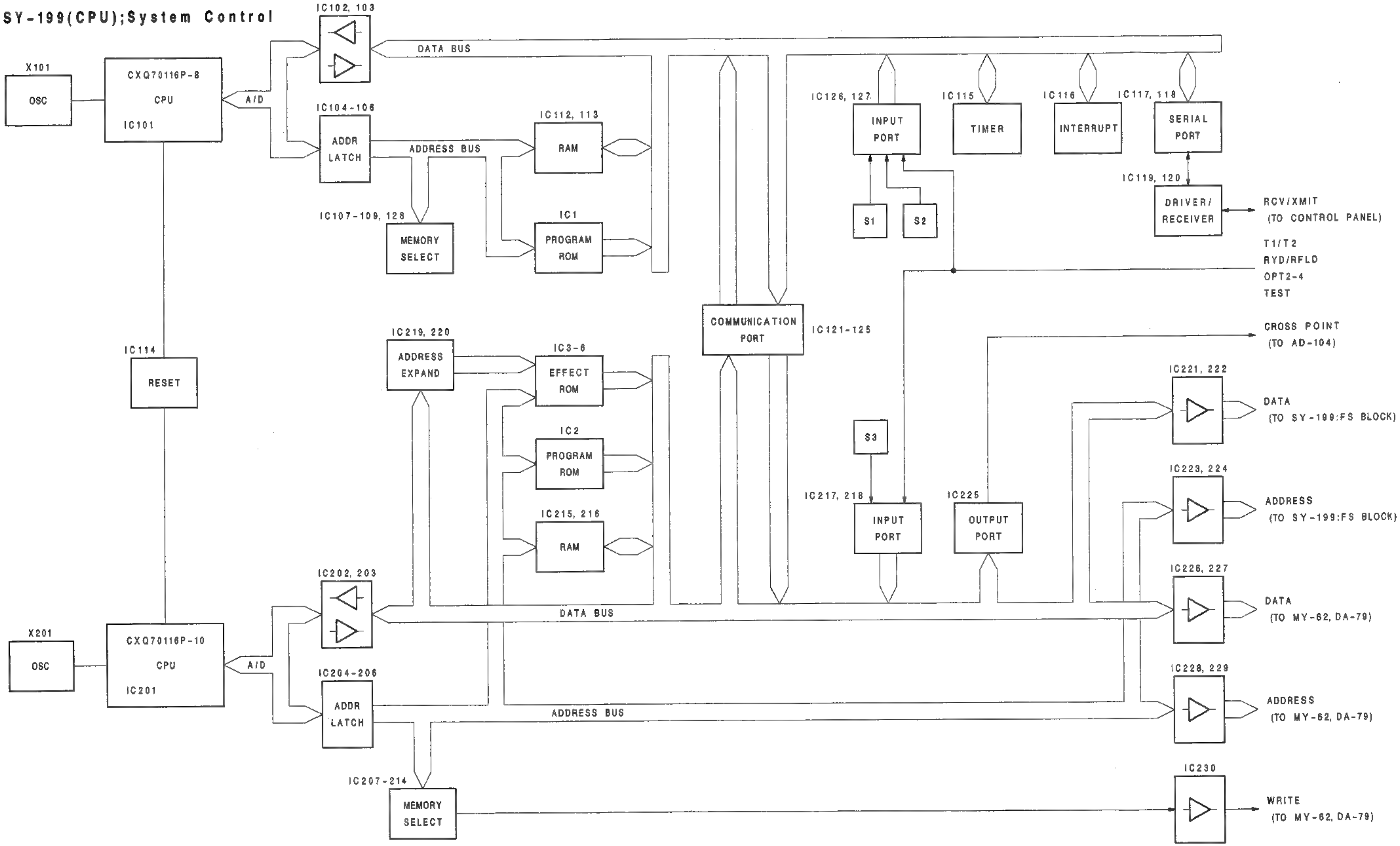

SYNC GEN.
GEN. LOCK
GEN. LOCK
910/908FH
HD
VD
FLD O/E
RCK
RHD
RVD
RFLD
SY-199
MY-62
SYNC
SC
BF
H PHASE
SC PHASE
H PHASE
SC PHASE
BLKG
INT/EXT
PHASE WIDTH ADJ.
DELAY & ADJ.
BLKG
PHASE ADJ.
BF
PHASE ADJ.
SC
EFFECT M/E
DSK M/E
BKGD
Y
V
U
FRGD
Y
V
U
K
DSK
Y
V
U
K
KEY DELAY
Y
V
U
BLKG ADD
BLKG ADD
BLKG ADD
BLKG ADD
DELAY
VAR. DELAY
D/A
D/A
LPF 5.0M
LPF 1.5M
LPF 1.5M
LPF 5.0M
Y
R-Y
B-Y
AMP
AMP
AMP
AMP
KEY
BF MIX
BF MIX
CLAMP
CLAMP
CROMA ENCODER
C
BPF
Y
VAR. DELAY
VAR. DELAY
AMP
AMP
R-Y
B-Y


MY-62
NRW BLKG
PHASE ADJ.
BF
PHASE ADJ.
SC
PHASE ADJ.
SYNC
DELAY
D/A
LPF 5.0M
Y
AMP
LPF 1.5M
R-Y
AMP
LPF 1.5M
B-Y
AMP
BF MIX
BF MIX
CLAMP
CLAMP
CROMA ENCODER
C
BPF
Y
MIX AMP.
MIX AMP
CLAMP
CLAMP
CLAMP
OUTPUT AMP
B.B. OUT ①
B.B. OUT ②
B.B. OUT ③
OUTPUT AMP
COMPOSITE ①
COMPOSITE ②
OUTPUT AMP
OUTPUT AMP
Y
C
Y/C ①
Y
C
Y/C ②
OUTPUT AMP
Y
R-Y
B-Y
COMPONENT ①
OUTPUT AMP
Y
R-Y
B-Y
COMPONENT ②
OUTPUT AMP
VAR. DELAY
D/A
LPF 5.0M
VAR. DELAY
AMP
R-Y
CLAMP
VAR. DELAY
AMP
B-Y
CLAMP
AMP
KEY
CLAMP
OUTPUT AMP
KEY OUT

DA-79 BLOCK DIAGRAM

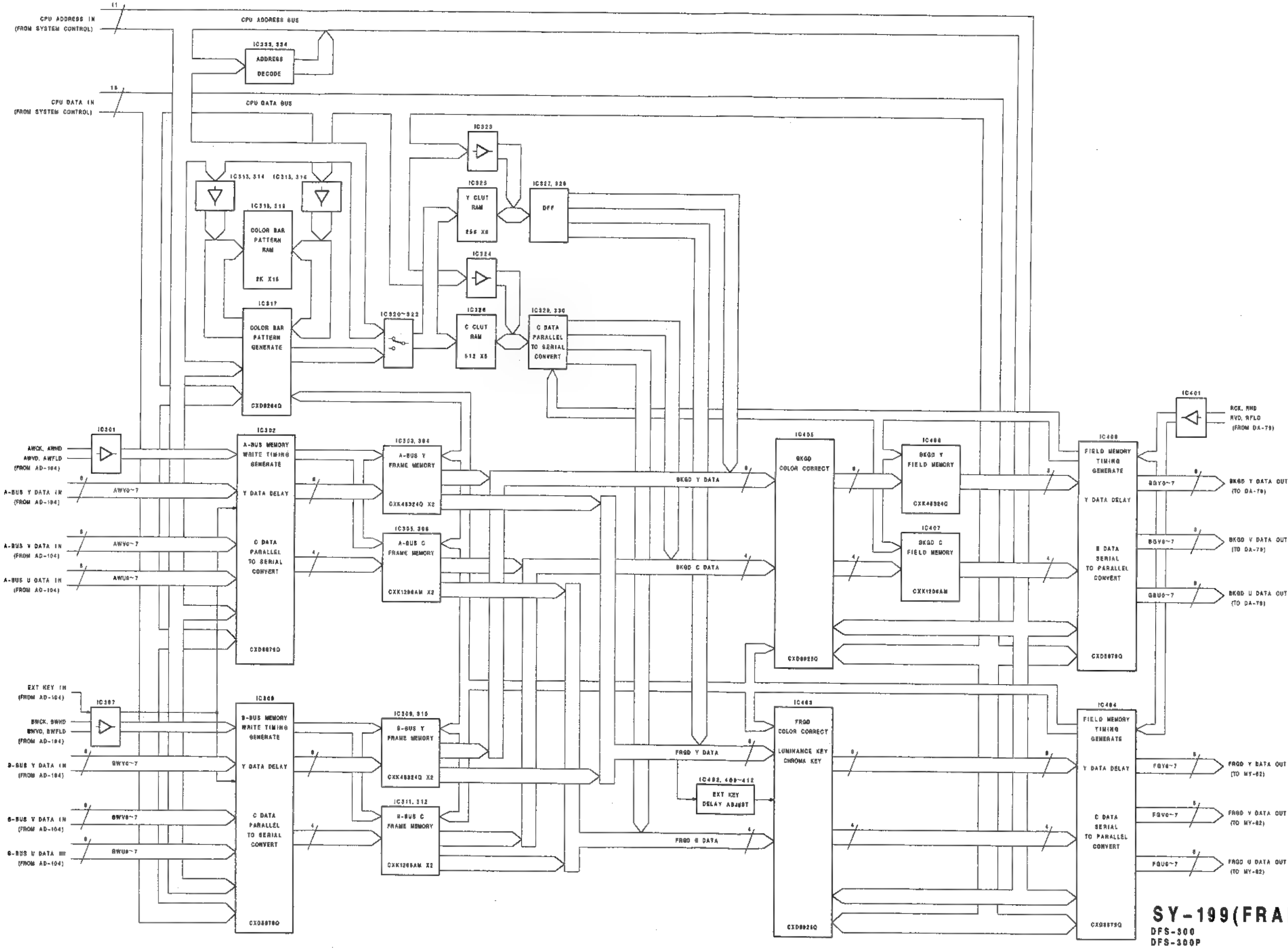
DFS-300
DFS-300P

SY-199(CPU);System Control


IC102, 103
DATA BUS
X101
OSC
CXQ70116P-8
CPU
IC101
A/D
IC104-106
ADDR LATCH
ADDRESS BUS
IC112, 113
RAM
IC107-109, 128
MEMORY SELECT
IC1
PROGRAM ROM
IC126, 127
INPUT PORT
IC115
TIMER
IC116
INTERRUPT
IC117, 118
SERIAL PORT
IC119, 120
DRIVER/ RECEIVER
RCV/XMIT
(TO CONTROL PANEL)
S1
S2
T1/T2
RYD/RFLD
OPT2-4
TEST
COMMUNICATION PORT
IC121-125
CROSS POINT
(TO AD-104)
IC114
RESET
IC219, 220
ADDRESS EXPAND
IC3-6
EFFECT ROM
IC2
PROGRAM ROM
IC215, 216
RAM
S3
IC217, 218
INPUT PORT
IC225
OUTPUT PORT
IC221, 222
DATA
(TO SY-199:FS BLOCK)
IC223, 224
ADDRESS
(TO SY-199:FS BLOCK)
IC226, 227
DATA
(TO MY-62, DA-79)
IC228, 229
ADDRESS
(TO MY-62, DA-79)
IC202, 203
DATA BUS
X201
OSC
CXQ70116P-10
CPU
IC201
A/D
IC204-206
ADDR LATCH
ADDRESS BUS
IC207-214
MEMORY SELECT
IC230
WRITE
(TO MY-62, DA-79)

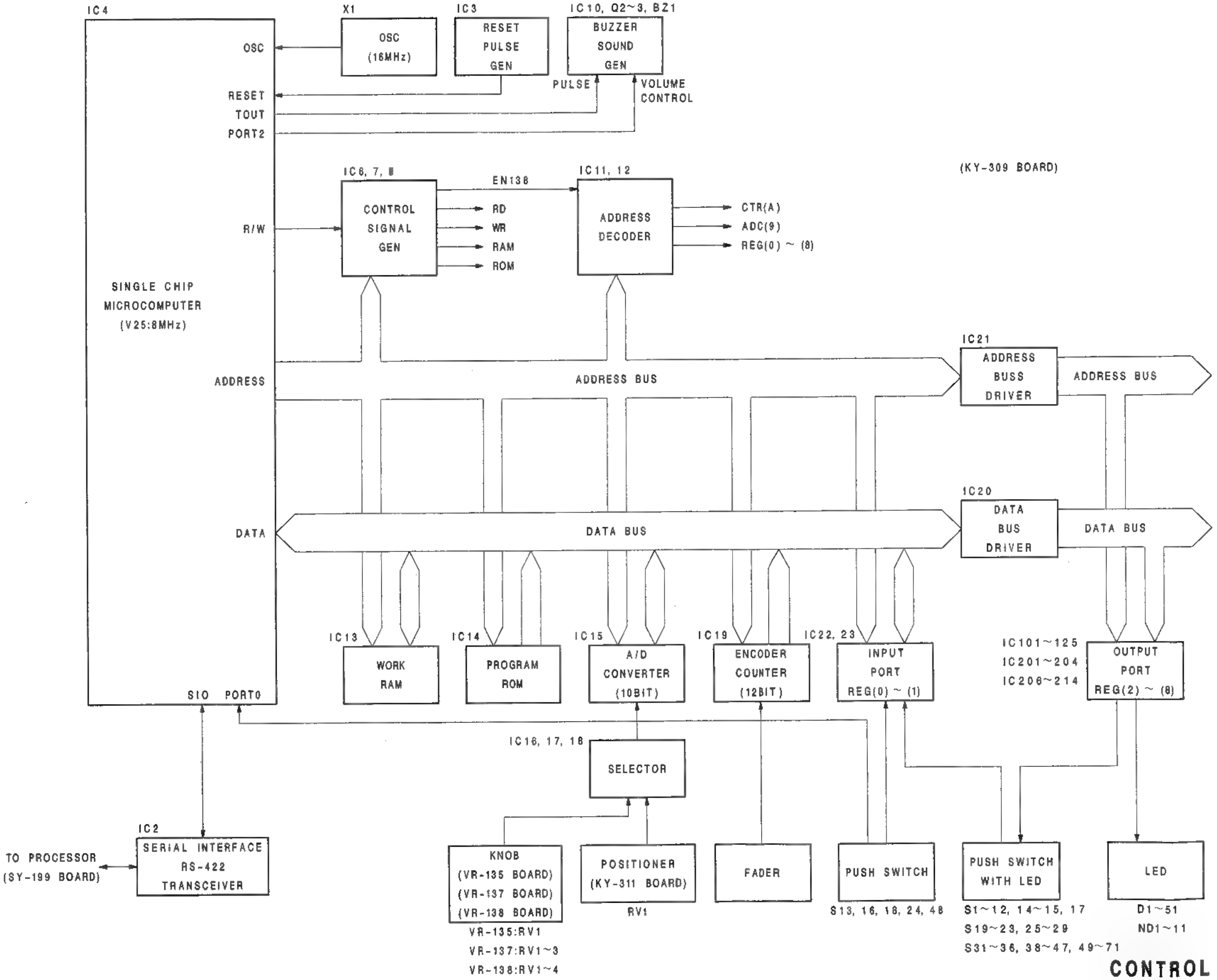
SY-199(CPU) BLOCK DIAGRAM
DFS-300
DFS-300P

SY-199(FRAME);System Control


11
CPU ADDRESS IN
(FROM SYSTEM CONTROL)
CPU ADDRESS BUS
IC333, 334
ADDRESS DECODE
15
CPU DATA IN
(FROM SYSTEM CONTROL)
CPU DATA BUS
IC313, 314
IC315, 316
IC318, 319
COLOR BAR PATTERN RAM
2K X16
IC317
COLOR BAR PATTERN GENERATE
CXD8264Q
IC320~322
IC323
IC325
Y CLUT RAM
256 X8
IC327, 328
DFF
IC324
IC326
C CLUT RAM
512 X8
IC329, 330
C DATA PARALLEL TO SERIAL CONVERT
IC301
AWCK, AWHD
AWVD, AWFLD
(FROM AD-104)
A-BUS Y DATA IN
(FROM AD-104)
AWY0~7
A-BUS V DATA IN
(FROM AD-104)
AWV0~7
A-BUS U DATA IN
(FROM AD-104)
AWU0~7
IC302
A-BUS MEMORY WRITE TIMING GENERATE
Y DATA DELAY
C DATA PARALLEL TO SERIAL CONVERT
CXD8876Q
IC303, 304
A-BUS Y FRAME MEMORY
CXK48324Q X2
IC305, 306
A-BUS C FRAME MEMORY
CXK1206AM X2
EXT KEY IN
(FROM AD-104)
IC307
BWCK, BWHD
BWVD, BWFLD
(FROM AD-104)
B-BUS Y DATA IN
(FROM AD-104)
BWY0~7
B-BUS V DATA IN
(FROM AD-104)
BWV0~7
B-BUS U DATA IN
(FROM AD-104)
BWU0~7
IC308
B-BUS MEMORY WRITE TIMING GENERATE
Y DATA DELAY
C DATA PARALLEL TO SERIAL CONVERT
CXD8876Q
IC309, 310
B-BUS Y FRAME MEMORY
CXK48324Q X2
IC311, 312
B-BUS C FRAME MEMORY
CXK1206AM X2
BKGD Y DATA
BKGD C DATA
FRGD Y DATA
FRGD C DATA
IC402, 409~412
EXT KEY DELAY ADJUST
IC405
BKGD COLOR CORRECT
CXD8925Q
IC406
BKGD Y FIELD MEMORY
CXK48324Q
IC407
BKGD C FIELD MEMORY
CXK1206AM
IC408
FIELD MEMORY TIMING GENERATE
Y DATA DELAY
C DATA SERIAL TO PARALLEL CONVERT
CXD8879Q
IC401
RCK, RHD
RVD, RFLD
(FROM DA-79)
BGY0~7
BKGD Y DATA OUT
(TO DA-79)
BGV0~7
BKGD V DATA OUT
(TO DA-79)
BGU0~7
BKGD U DATA OUT
(TO DA-79)
IC403
FRGD COLOR CORRECT
LUMINANCE KEY
CHROMA KEY
CXD8925Q
IC404
FIELD MEMORY TIMING GENERATE
Y DATA DELAY
C DATA SERIAL TO PARALLEL CONVERT
CXD8879Q
FGY0~7
FRGD Y DATA OUT
(TO MY-62)
FGV0~7
FRGD V DATA OUT
(TO MY-62)
FGU0~7
FRGD U DATA OUT
(TO MY-62)
8
4

SY-199(FRAME) BLOCK
DFS-300
DFS-300P

CONTROL PANEL


IC4
SINGLE CHIP MICROCOMPUTER (V25:8MHz)
OSC
RESET
TOUT
PORT2
R/W
ADDRESS
DATA
SIO
PORT0
X1
OSC (16MHz)
IC3
RESET PULSE GEN
IC10, Q2~3, BZ1
BUZZER SOUND GEN
PULSE
VOLUME CONTROL
IC6, 7, 8
CONTROL SIGNAL GEN
EN138
RD
WR
RAM
ROM
IC11, 12
ADDRESS DECODER
CTR(A)
ADC(9)
REG(0) ~ (8)
(KY-309 BOARD)
IC21
ADDRESS BUSS DRIVER
ADDRESS BUS
ADDRESS BUS
IC20
DATA BUS DRIVER
DATA BUS
DATA BUS
IC13
WORK RAM
IC14
PROGRAM ROM
IC15
A/D CONVERTER (10BIT)
IC19
ENCODER COUNTER (12BIT)
IC22, 23
INPUT PORT REG(0) ~ (1)
IC101~125
IC201~204
IC206~214
OUTPUT PORT REG(2) ~ (8)
IC16, 17, 18
SELECTOR
IC2
SERIAL INTERFACE RS-422 TRANSCEIVER
TO PROCESSOR (SY-199 BOARD)
KNOB (VR-135 BOARD) (VR-137 BOARD) (VR-138 BOARD)
VR-135:RV1
VR-137:RV1~3
VR-138:RV1~4
POSITIONER (KY-311 BOARD)
RV1
FADER
PUSH SWITCH
S13, 16, 18, 24, 48
PUSH SWITCH WITH LED
S1~12, 14~15, 17
S19~23, 25~29
S31~36, 38~47, 49~71
LED
D1~51
ND1~11

SECTION 6
SCHEMATIC DIAGRAMS & BOARD LAYOUTS

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AD-104(5/7)	B-BUS Y/C Separator Block	6-11
AD-104(6/7)	B-BUS Decoder & Component Process Block, A/D Converter Block	6-13
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SY-199(1/4)	Main CPU	6-33
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注意：⚠ 印のついた部品は安全性を維持するために重要な部品です。
従って交換するときは必ず指定の部品を使ってください。

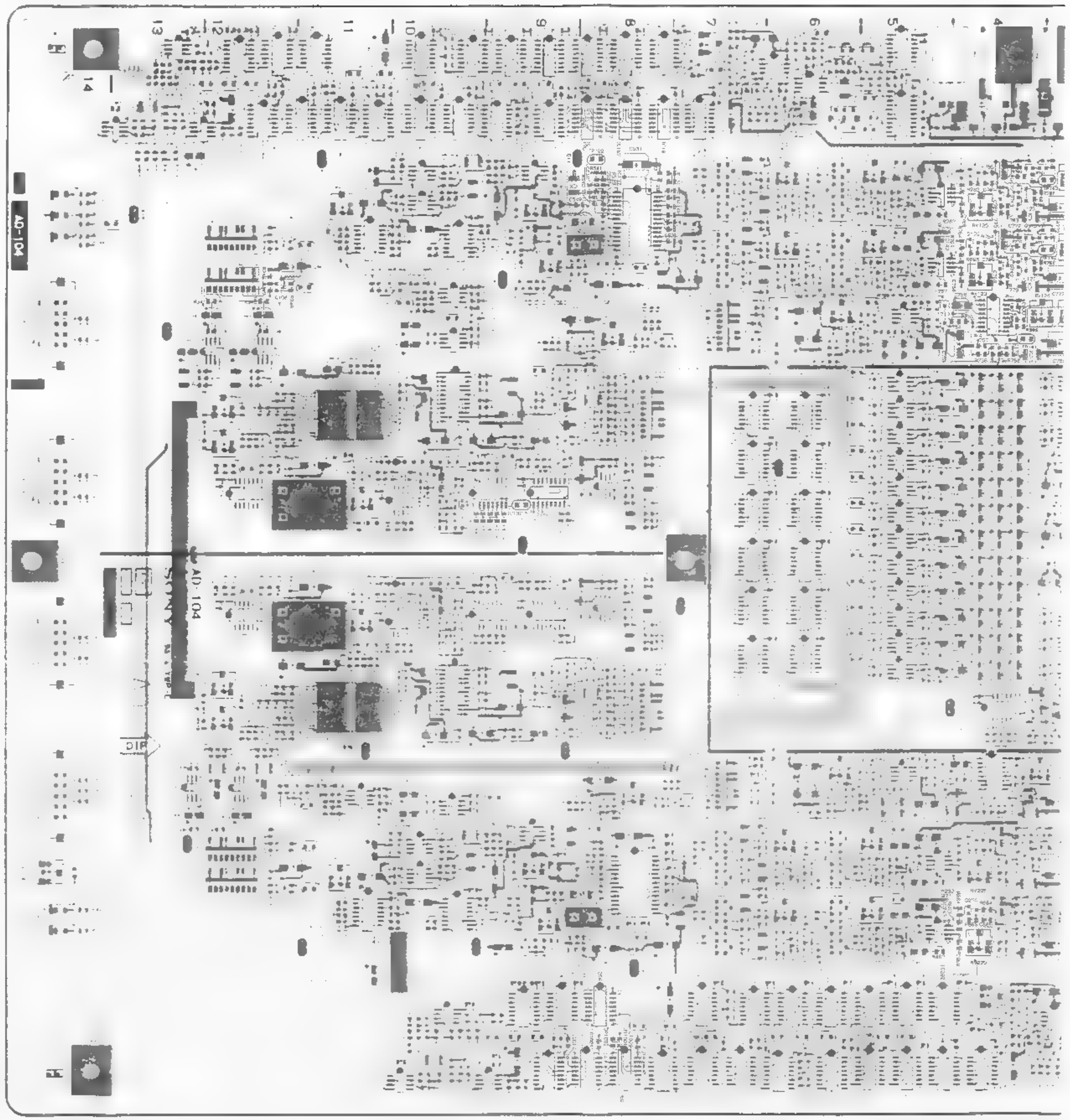
NOTE: The ⚠ -marked components are critical to safety.
Replace only with same components as specified.

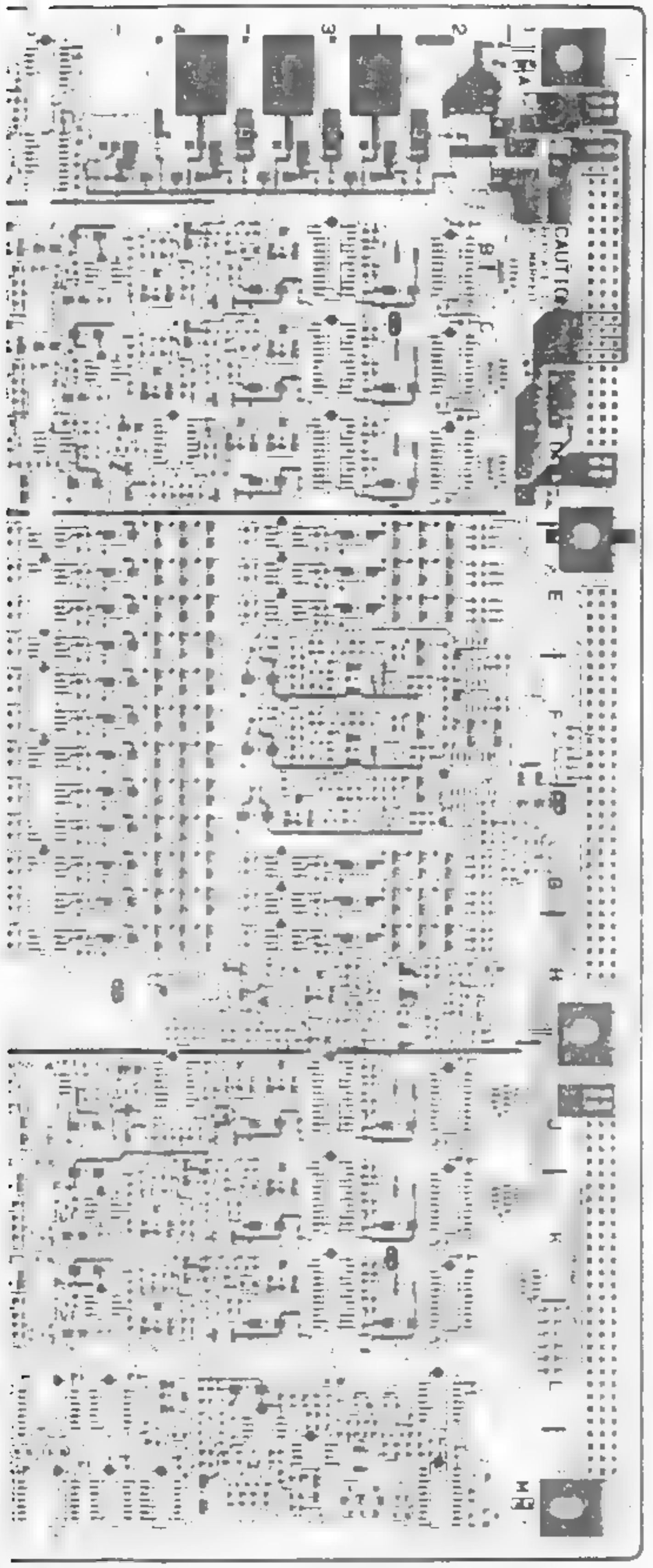
AD-104 (1-655-298-11)

CN1	C-1
CN2	F-1
CN3	K-1
CV101	C-8
CV201	K-8
DL103	D-8
DL203	L-8
D1	C-14
D2	C-14
D3	H-3
D4	C-14
D5	K-14
D6	E-14
D7	G-1
D8	G-1
D101	E-9
D102	[illegible]
D103	E-12
◎D104	C-8
D106	C-9
D107	C-9
D111	C-9
D112	C-4
D113	C-4
D121	A-7
D123	A-6
D124	A-6
D125	A-6
D126	A-5
D127	A-7
D128	B-6
D201	H-8
D202	G-1
D203	[illegible]
◎D204	H-9
D206	K-9
D207	L-9
D211	[illegible]
D212	L-4
D213	K-4
D221	L-4
D223	[illegible]
D224	L-9
D225	L-9
D226	[illegible]
D227	M-4
D228	M-3
E1	[illegible]
E2	H-4
E3	G-1
E4	G
E5	[illegible]
E6	F
E7	[illegible]
E8	[illegible]
E9	[illegible]
E10	[illegible]
E11	B-6
E12	L-6
E13	[illegible]
E14	[illegible]
E15	[illegible]
E16	K-2
E17	[illegible]
E18	L-8
E19	[illegible]
FB201	M-2
FB901	A-5
FL101	E-8
FL102	C-12
FL103	C-12
FL111	[illegible]
FL112	B-7
FL113	C-7
FL114	C-6
FL115	E-8
FL201	H-8
FL202	[illegible]
FL203	[illegible]
FL211	K-7
FL212	K-7
FL213	J-7
FL214	K-8
FL215	K-8
C1	G-8
C2	G-8
C3	F-8
C4	E-8
C5	F-8
C6	E-8
C7	G-7
C8	G-7
C9	F-7
C10	[illegible]
C11	E-7
C12	E-7
C13	[illegible]
C14	E-4
C15	E-3
C16	E-5
C17	H-3
C18	[illegible]
C19	G-2
C20	G-2
C21	[illegible]
C22	[illegible]
C101	F-5
C102	F-5
C103	[illegible]
C104	[illegible]
C105	E-5
C106	E-3
C107	F-5
C108	E-3
C109	E-5
C122	[illegible]
C123	[illegible]
C124	[illegible]
C125	[illegible]
C126	F-8
C127	E-10
C128	[illegible]
C129	[illegible]
C130	[illegible]
C131	[illegible]
C132	[illegible]
C133	[illegible]
C134	[illegible]
C135	[illegible]
C136	C-9
C137	E-8
C138	E-9
C139	[illegible]
C140	[illegible]
C141	[illegible]
C142	C-5
C143	C-5
C144	B-5
C145	C-3
C146	C-3
C147	B-5
C148	C-2
C149	C-2
IC150	B-2
IC151	B-14
IC152	[illegible]
IC153	[illegible]
IC154	A-12
IC155	[illegible]
IC156	A-12
IC157	B-11
IC158	[illegible]
IC159	[illegible]
IC160	[illegible]
IC164	[illegible]
IC165	A-9
IC166	A-9
IC167	B-8
IC168	A-10
IC169	A-8
IC170	B-9
IC171	[illegible]
IC172	A-9
IC173	[illegible]
IC174	[illegible]
IC175	B-9
IC177	A-8
IC178	A-9
IC179	A-9
IC180	C-4
IC181	B-8
IC182	A-8
IC183	B-7
IC184	A-7
IC201	F-5
IC202	F-5
IC203	G-5
IC204	G-3
IC205	G-5
IC206	[illegible]
IC207	[illegible]
IC208	[illegible]
IC209	H-5
IC222	[illegible]
IC223	[illegible]
IC224	[illegible]
IC225	[illegible]
IC226	L-8
IC227	[illegible]
IC228	[illegible]
IC229	[illegible]
IC230	G-12
IC231	G-9
IC232	[illegible]
IC233	[illegible]
IC234	[illegible]
◎IC235	[illegible]
◎IC236	K-9
IC237	K-8
IC238	[illegible]
IC239	[illegible]
IC240	[illegible]
IC241	[illegible]
IC242	L-5
IC273	M-7
IC274	M-7
IC275	M-6
IC277	[illegible]
IC278	[illegible]
IC279	L-2
IC280	L-4
IC281	M-5
IC282	L-5
IC283	M-4
IC284	L-4
LV101	E-8
LV201	M-3
C243	K-5
C244	K-5
C245	L-3
C246	[illegible]
C247	L-3
C248	L-2
C249	K-2
C250	L-2
C251	[illegible]
C252	[illegible]
C253	[illegible]
C254	L-8
C255	M-8
C256	L-8
C257	M-8
C258	L-8
C259	M-8
C260	M-8
C264	L-7
C265	L-8
C266	L-8
C267	M-8
C268	L-7
C269	L-8
C270	M-8
C271	M-8
C272	L-8
PS1	[illegible]
PS2	[illegible]
PS3	[illegible]
Q1	G-2
Q2	G-2
Q3	G-2
Q4	[illegible]
Q5	F-2
Q6	F-2
Q7	[illegible]
Q8	[illegible]
Q9	[illegible]
Q10	[illegible]
Q11	[illegible]
Q12	[illegible]
Q13	[illegible]
Q14	[illegible]
Q15	[illegible]
Q16	[illegible]
Q17	[illegible]
Q18	[illegible]
Q19	[illegible]
Q20	[illegible]
Q21	[illegible]
Q22	[illegible]
Q23	[illegible]
Q101	[illegible]
Q102	[illegible]
Q103	[illegible]
Q104	[illegible]
Q105	[illegible]
Q106	[illegible]
Q107	[illegible]
Q108	[illegible]
Q109	[illegible]
Q110	[illegible]
Q111	[illegible]
Q112	[illegible]
Q113	[illegible]
Q114	[illegible]
Q115	[illegible]
Q121	[illegible]
Q123	C-8
Q124	C-8
Q125	C-8
Q126	[illegible]
Q132	C-7
Q133	C-6
Q134	C-6
Q135	C-6
Q136	C-7
Q137	B-7
Q138	C-6
Q139	C-8
Q140	C-6
Q141	B-10
Q151	C-7
Q152	C-6
Q153	C-5
Q154	C-5
Q155	C-5
Q156	C-5
Q157	C-5
Q158	C-5
Q159	C-5
Q160	C-5
Q191	A-12
Q192	B-12
Q193	[illegible]
Q194	A-7
Q195	A-7
Q196	A-7
Q197	B-7
Q198	A-6
Q201	H-8
Q202	H-8
Q203	H-8
Q204	H-8
Q205	H-9
Q206	H-9
Q207	K-12
Q208	K-12
Q211	G-8
Q212	G-8
Q213	[illegible]
Q214	[illegible]
Q215	[illegible]
Q222	[illegible]
Q223	L-8
Q224	[illegible]
Q225	[illegible]
Q231	[illegible]
Q232	[illegible]
Q233	L-8
Q234	L-9
Q235	L-8
Q236	[illegible]
Q237	[illegible]
Q238	K-8
Q239	K-8
Q240	K-8
Q241	[illegible]
Q251	[illegible]
Q252	L-9
Q253	L-9
Q254	L-8
Q255	L-8
Q256	L-8
Q257	[illegible]
Q258	K-8
Q259	K-9
Q260	K-9
Q271	K-4
Q272	L-8
Q171	[illegible]
Q172	C-4
Q173	C-4
Q174	C-4
Q175	C-4
Q176	C-4
Q177	B-4
Q178	B-4
Q179	B-4
Q180	[illegible]
Q181	C-4
Q182	B-4
Q183	C-4
Q273	L-4
Q274	L-4
Q275	K-4
Q276	K-4
Q277	K-4
Q278	L-4
Q279	L-4
Q280	[illegible]
Q281	L-4
Q282	K-4
Q283	K-4
Q291	[illegible]
Q292	[illegible]
Q293	[illegible]
Q294	M-4
Q295	L-4
Q296	L-4
Q297	M-4
Q298	[illegible]
RB201	[illegible]
RB202	[illegible]
RB203	K-2
RB501	C-2
RB502	C-2
RB503	C-2
RV1	G-2
RV2	[illegible]
RV3	[illegible]
RV4	H-3
RV5	[illegible]
RV101	[illegible]
RV102	[illegible]
RV103	[illegible]
RV111	C-8
RV112	[illegible]
RV113	C-9
RV114	[illegible]
RV115	[illegible]
RV116	[illegible]
RV117	C-6
RV118	[illegible]
RV119	[illegible]
RV120	C-4
RV121	[illegible]
RV122	[illegible]
RV123	[illegible]
RV124	C-4
RV125	C-4
○RV131	A-7
RV201	[illegible]
RV202	[illegible]
RV203	[illegible]
RV211	L-8
RV212	K-9
RV213	K-9
RV214	K-8
RV215	K-8
RV216	[illegible]
RV217	L-8
RV218	K-5
RV219	K-5
RV220	L-6
RV221	[illegible]
RV222	K-3
RV223	K-3
RV224	L-4
RV225	K-4
RV231	L-4
S1	D-14
S2	F-14
S3	G-14
S4	J-14
TP1	H-2
TP2	H-3
TP3	H-3
TP4	F-8
TP5	F-8
TP6	F-8
TP7	F-8
TP8	E-8
TP9	G-8
TP10	E-8
TP11	G-8
TP12	E-8
TP13	G-8
TP14	C-8
TP15	H-8
TP16	C-9
TP112	[illegible]
TP113	[illegible]
TP114	F-8
TP115	E-8
TP116	[illegible]
TP117	E-12
TP118	F-9
TP119	C-13
TP121	[illegible]
TP122	E-8
TP123	C-8
TP124	[illegible]
TP125	C-8
TP131	[illegible]
TP132	[illegible]
TP133	[illegible]
TP141	C-4
TP142	C-3
TP143	[illegible]
TP144	[illegible]
TP151	A-12
TP152	[illegible]
TP153	[illegible]
TP154	[illegible]
TP155	[illegible]
TP156	A-9
TP157	A-9
TP158	A-8
TP159	A-10
TP160	A-9
TP161	A-8
TP162	A-7
TP163	A-6
TP164	A-6
TP165	A-6
TP211	H-6
TP212	[illegible]
TP213	[illegible]
TP214	G-8
TP215	G-9
TP216	[illegible]
TP217	[illegible]
TP218	G-9
TP221	L-9
TP222	L-8
TP223	K-8
TP224	K-7
TP225	L-8
TP231	J-5
TP232	K-5
TP233	J-5
TP241	J-4
TP242	K-3
TP243	K-3
TP244	J-11
TP251	M-9
TP252	M-9
TP253	M-8
TP254	M-8
TP255	M-9
TP256	M-9
TP257	M-6
TP258	M-5
TP259	M-7
TP260	M-6
TP261	M-5
TP262	M-4
TP263	L-3
TP264	M-2
TP265	M-2
X101	F-11
X102	C-8
X201	G-11
X202	K-8

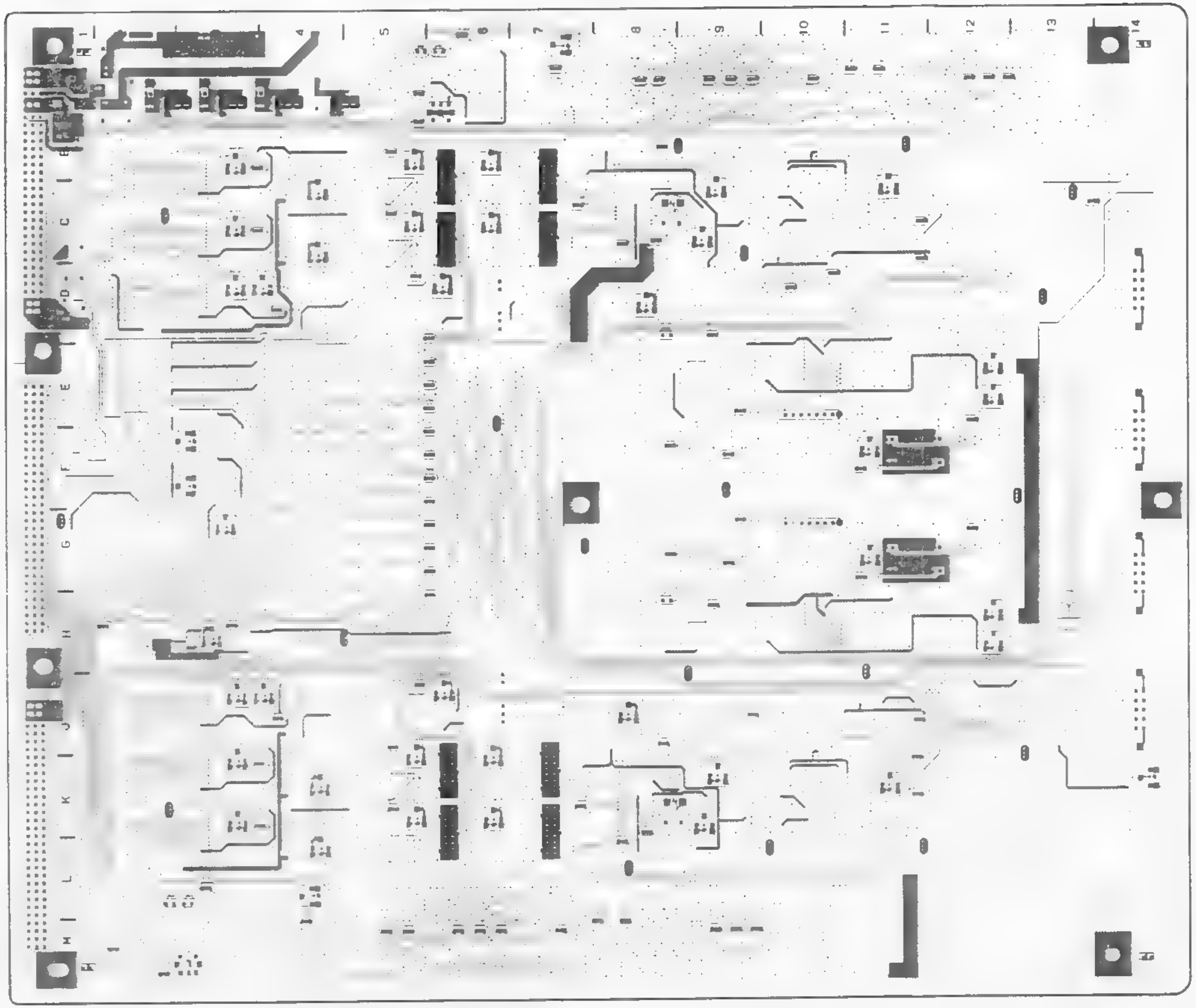
○: NTSC ONLY
◎: PAL ONLY

AD-104; A/D Converter




CAUTION
1
2
3
4
A
E
F
G
H
J
K
L
M

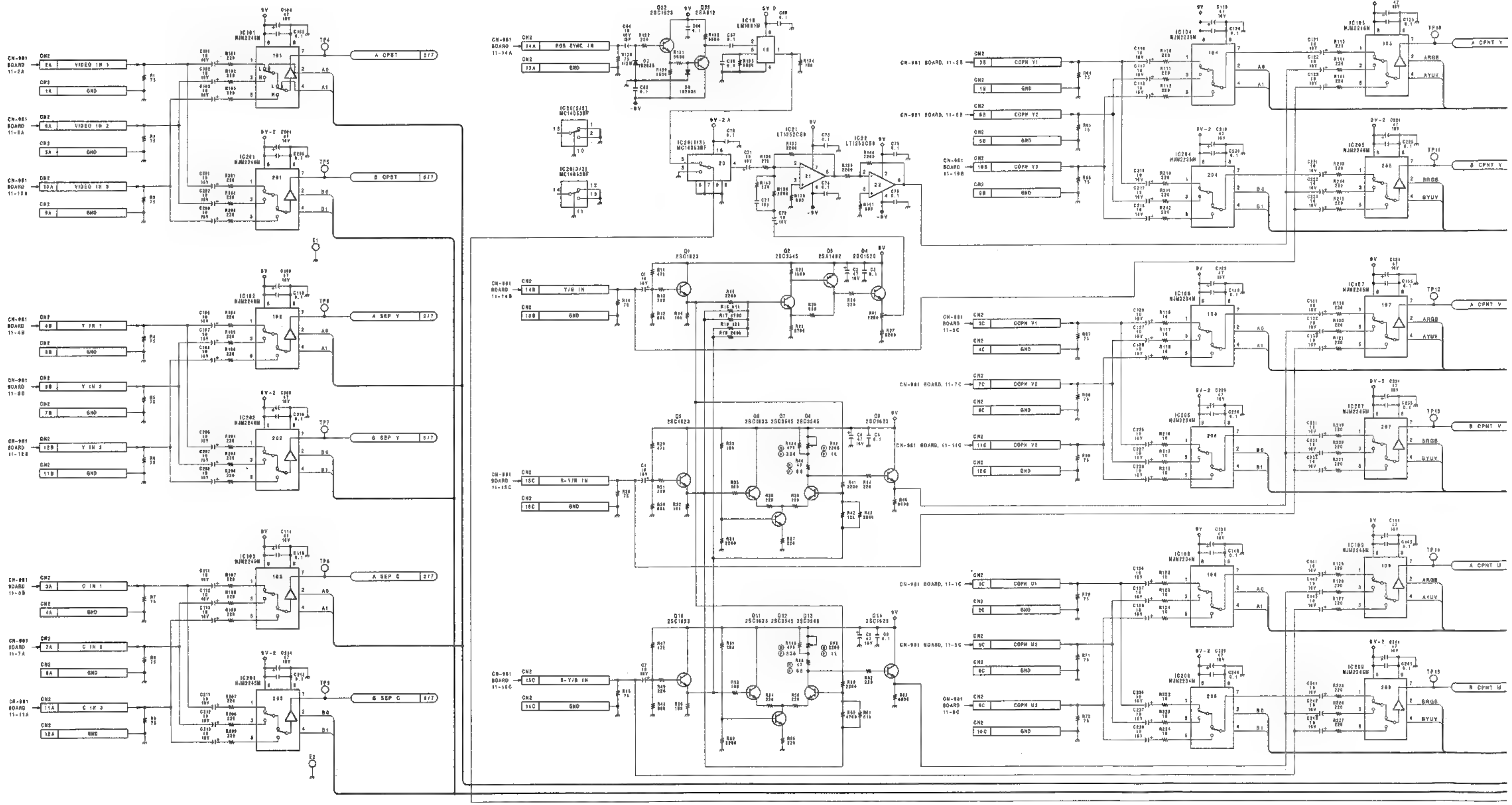
AD-104 -A SIDE-


1
4
5
6
7
8
9
10
11
12
13
14
B
C
D
E
F
G
H
J
K
L
M

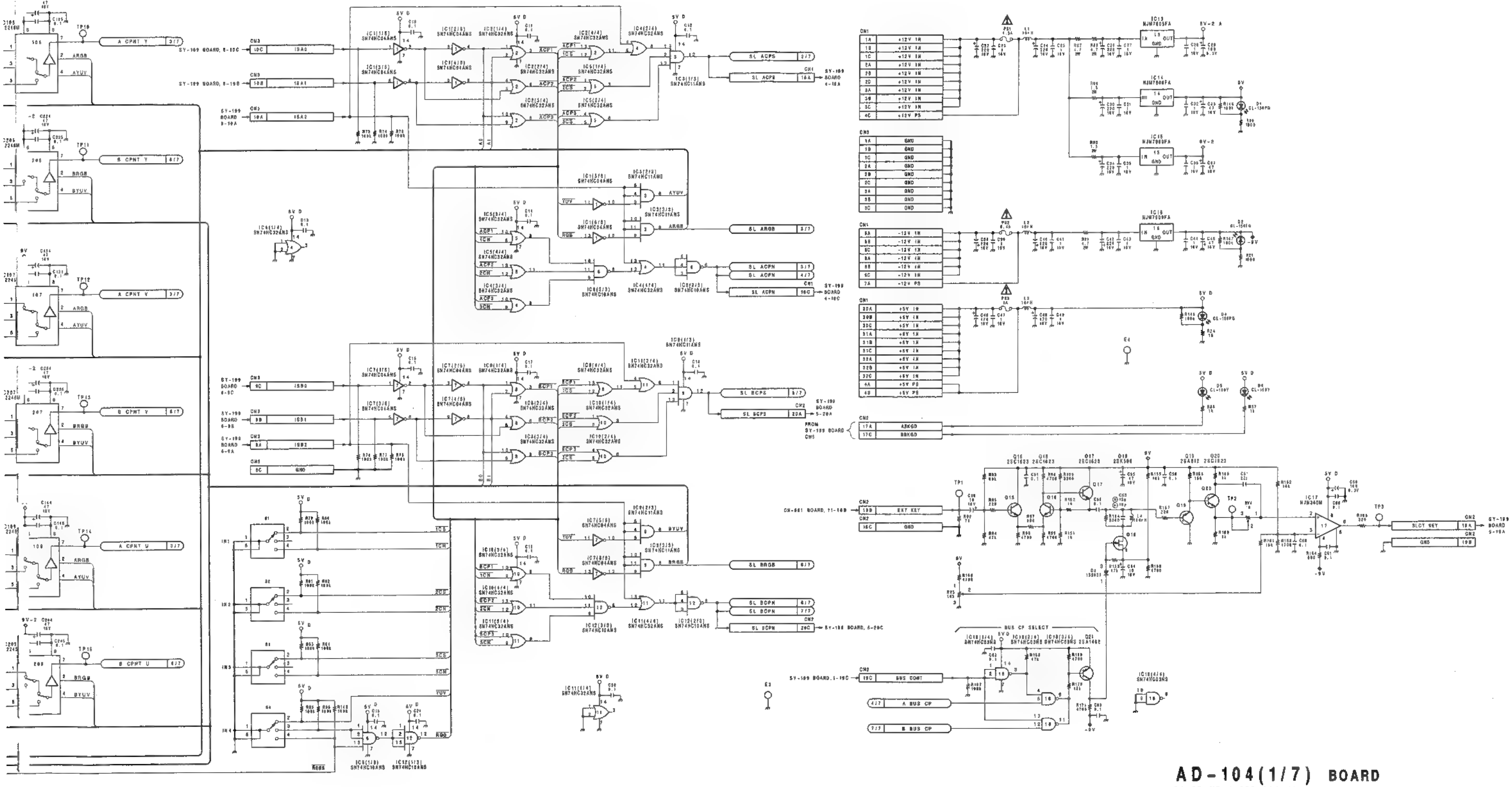
AD-104 -B SIDE-

DFS-300/300P

AD-104(1/7); Cross Point, Input Select Control GEN., RGB Signals Block & EXT Key GEN.


CN-981 BOARD 11-2A
VIDEO IN 1
GND
CN-981 BOARD 11-8A
VIDEO IN 2
CN-981 BOARD 11-10A
VIDEO IN 3
IC101 NJM2246M
IC201 NJM2246M
A CPST
B CPST
TP4
TP5
E1
CN-981 BOARD 11-4B
Y IN 1
CN-981 BOARD 11-8B
Y IN 2
CN-981 BOARD 11-12B
Y IN 3
IC102 NJM2246M
IC202 NJM2246M
A SEP Y
B SEP Y
TP6
TP7
CN-981 BOARD 11-3B
C IN 1
CN-981 BOARD 11-7A
C IN 2
CN-981 BOARD 11-11A
C IN 3
IC103 NJM2246M
IC203 NJM2245M
A SEP C
B SEP C
TP8
TP9
E2
CN-981 BOARD 11-14A
RGB SYNC IN
Q22 2SC1623
Q23 2SA812
IC18 LM1881M
IC20(1/3) MC14053BF
IC20(2/3) MC14053BF
IC20(3/3) MC14053BF
IC21 LT1252CS8
IC22 LT1252CS8
CN-981 BOARD 11-14B
Y/G IN
Q1 2SC1623
Q2 2SC3545
Q3 2SA1462
Q4 2SC1623
CN-981 BOARD 11-15C
R-Y/R IN
Q5 2SC1623
Q6 2SC1623
Q7 2SC3545
Q8 2SC3545
Q9 2SC1623
CN-981 BOARD 11-16C
B-Y/B IN
Q10 2SC1623
Q11 2SC1623
Q12 2SC3545
Q13 2SC3545
Q14 2SC1623
CN-981 BOARD, 11-2B
COPN Y1
CN-981 BOARD, 11-6B
COPN Y2
CN-981 BOARD 11-10B
COPN Y3
IC104 NJM2235M
IC204 NJM2235M
IC105 NJM2246M
IC205 NJM2246M
A CPNT Y
B CPNT Y
ARGB
AYUV
BRGB
BYUV
TP10
TP11
CN-981 BOARD 11-3C
COPN V1
CN-981 BOARD, 11-7C
COPN V2
CN-981 BOARD, 11-11C
COPN V3
IC106 NJM2234M
IC206 NJM2234M
IC107 NJM2246M
IC207 NJM2246M
A CPNT V
B CPNT V
TP12
TP13
CN-981 BOARD, 11-1C
COPN U1
CN-981 BOARD, 11-5C
COPN U2
CN-981 BOARD 11-9C
COPN U3
IC108 NJM2234M
IC208 NJM2234M
IC109 NJM2246M
IC209 NJM2246M
A CPNT U
B CPNT U
TP14
TP15
5V
5V-2
-5V

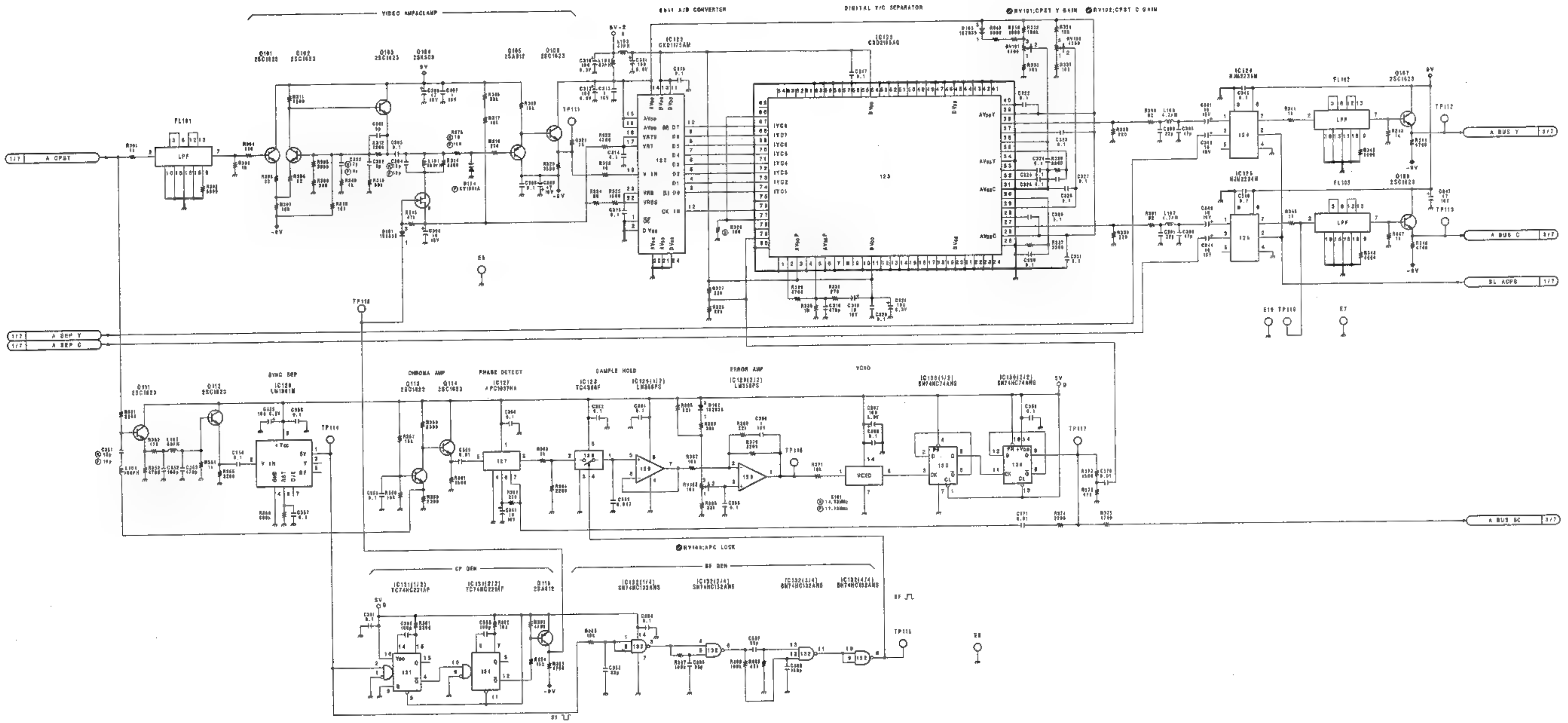
A B C D E F G H I


A CPNT Y
B CPNT Y
A CPNT V
B CPNT V
A CPNT U
B CPNT U
TP10
TP11
TP12
TP13
TP14
TP15
ARGB
AYUV
BRGB
BYUV
SY-199 BOARD, 8-19C
SY-199 BOARD, 8-19B
ISA0
ISA1
ISA2
ISB0
ISB1
ISB2
IC1(1/6) SN74HC04ANS
IC2(1/4) SN74HC32ANS
IC3(1/3) SN74HC11ANS
IC6(1/4) SN74HC32ANS
IC8(1/3) SN74HC10ANS
ACP1
ACP2
ACP3
ACS
ACPS
BCP1
BCP2
BCP3
BCS
YUV
RGB
ICH
ICS
ACPN
BCPN
SL ACPS
SL ARGB
SL ACPN
SL BCPS
SL BRGB
SL BCPN
SL SCPN
SY-199 BOARD 4-18A
SY-199 BOARD 4-18C
SY-199 BOARD 5-20A
SY-199 BOARD, 5-20C
S1
S2
S3
S4
IN1
IN2
IN3
IN4
CN1
CN2
CN3
CN5
+12V IN
+12V PS
GND
-12V IN
-12V PS
+5V IN
+5V PS
PS1 1.5A
PS2 0.4A
PS3 3A
L1 10µH
L2 10µH
L3 10µH
IC13 NJM7805FA
IC14 NJM7805FA
IC15 NJM7905FA
IC16 NJM7909FA
IN
OUT
GND
5V-2 A
5V
5V-2
-5V
5V D
D1 CL-150PG
D2 CL-150PG
D4 CL-150PG
D5 CL-150Y
D6 CL-150Y
FROM SY-199 BOARD CN5
ABKGD
BBKGD
CN-881 BOARD, 11-18B
EXT KEY
Q15 2SC1623
Q16 2SC1623
Q17 2SC1623
Q18 2SK508
Q19 2SA812
Q20 2SC1623
Q21 2SA1462
TP1
TP2
TP3
IC17 NJM360M
SLCT KEY
BUS CP SELECT
IC18 SN74HC03NS
SY-199 BOARD, 1-19C
BUS CONT
A BUS CP
B BUS CP
E1
E2
E3
1
2
3
4
5
I
J
K
L
M
N
O
P

AD-104(1/7) BOARD

BOARD NO. 1-655-298-11
DFS-300
DFS-300P

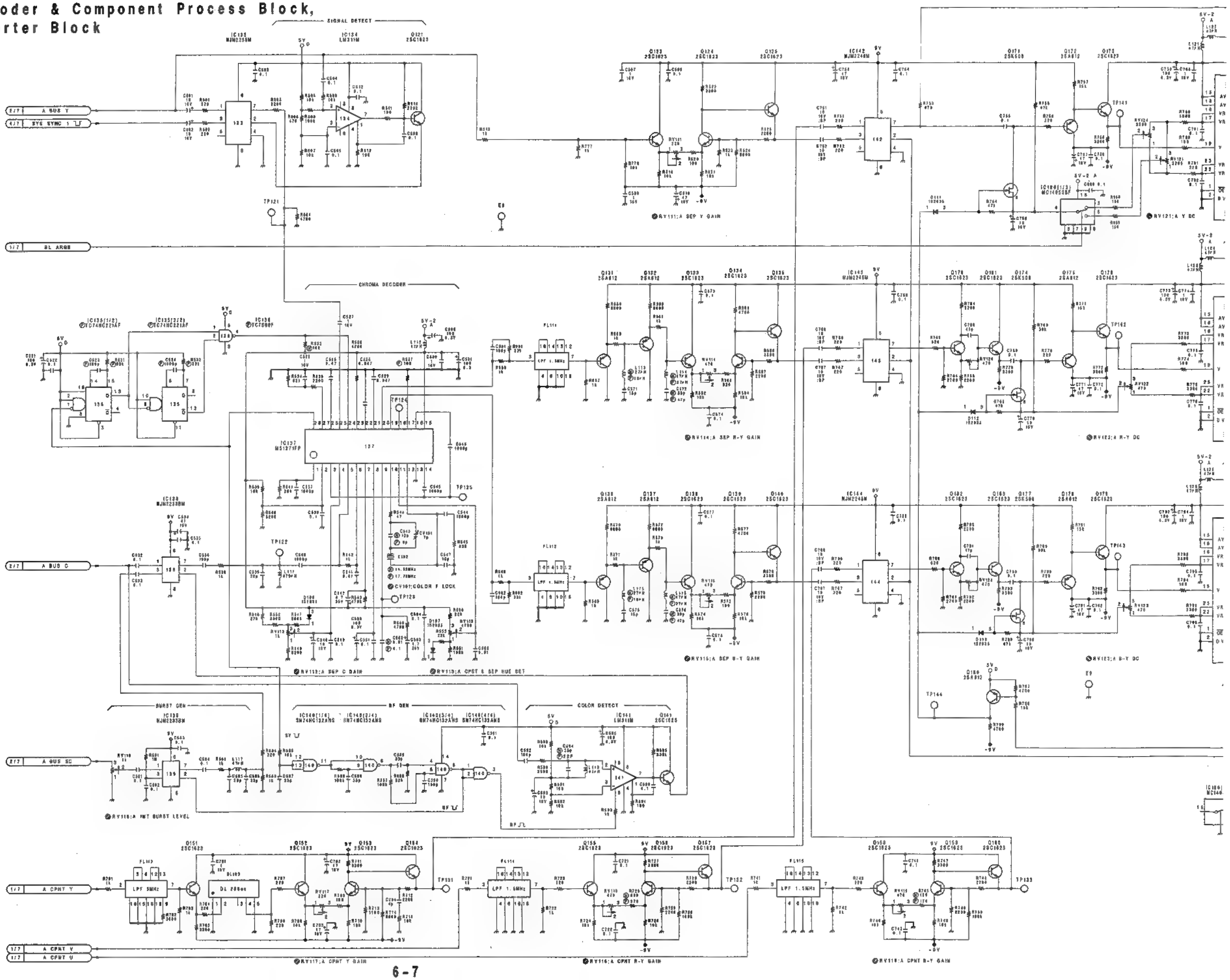
AD-104(2/7);A-BUS Y/C Separator Block


VIDEO AMP&CLAMP
8bit A/D CONVERTER
DIGITAL Y/C SEPARATOR
RV101;CPST Y GAIN
RV102;CPST C GAIN
Q101 2SC1623
Q102 2SC1623
Q103 2SC1623
Q104 2SK509
Q105 2SA812
Q106 2SC1623
5V-2
IC122 CXD1175AM
IC123 CXD2105AQ
IC124 NJM2234M
IC125 NJM2234M
FL101
FL102
FL103
LPF
Q107 2SC1623
Q108 2SC1623
TP111
TP112
TP113
TP118
1/7 A CPST
A BUS Y 3/7
A BUS C 3/7
BL ACPS 1/7
1/7 A SEP Y
1/7 A SEP C
A BUS SC 3/7
E6
E7
E19
SYNC SEP
Q111 2SC1623
Q112 2SC1623
IC128 LM1881M
CHROMA AMP
Q113 2SC1623
Q114 2SC1623
PHASE DETECT
IC127 μPC1037HA
SAMPLE HOLD
IC122 TC4S66F
IC129(1/2) LM358PS
ERROR AMP
IC129(2/2) LM358PS
VCXO
IC130(1/2) SN74HC74ANS
IC130(2/2) SN74HC74ANS
5V
TP114
TP116
TP117
X101 Ⓝ14.318MHz Ⓟ17.734MHz
RV103;APC LOCK
CP GEN
BF GEN
IC131(1/2) TC74HC221AF
IC131(2/2) TC74HC221AF
Q115 2SA812
IC132(1/4) SN74HC132ANS
IC132(2/4) SN74HC132ANS
IC132(3/4) SN74HC132ANS
IC132(4/4) SN74HC132ANS
BF
TP115
E8
CP
1
2
3
4
5
A
B
C
D
E
F
G
H

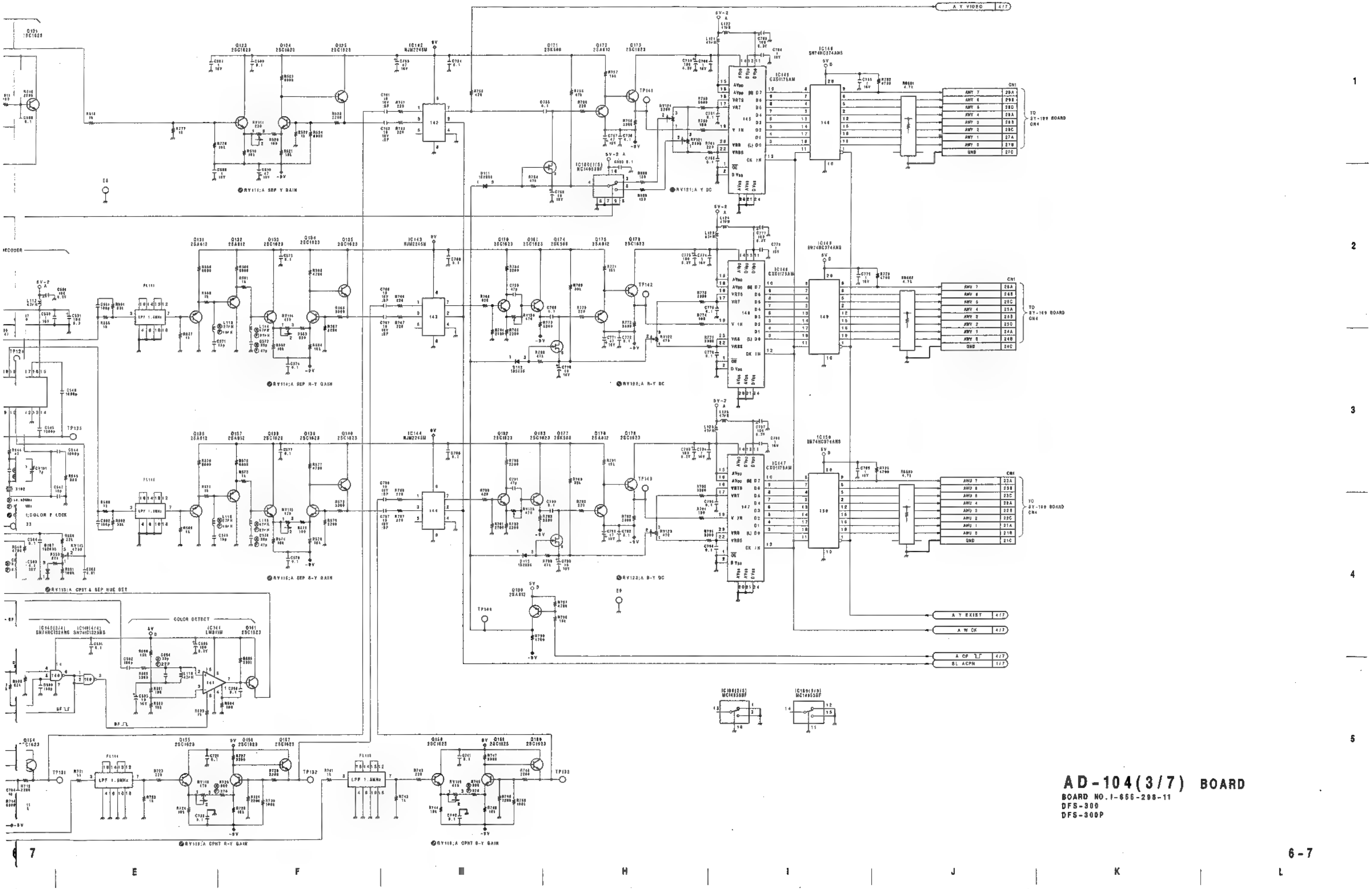
AD-104(2/7) BOARD

BOARD NO.1-655-298-11
DFS-300
DFS-300P

AD-104(3/7); A-BUS Decoder & Component Process Block, A/D Converter Block


SIGNAL DETECT
IC133 NJM2235M
IC134 LM311M
Q121 2SC1623
2/7 A BUS Y
4/7 SYS SYNC 1
1/7 BL ARGB
TP121
E8
CHROMA DECODER
IC135(1/2) TC74HC221AF
IC135(2/2) TC74HC221AF
IC136 TC7S08F
IC137 M51271FP
TP122
TP123
TP124
TP125
CV101:COLOR F LOCK
RV112:A SEP C GAIN
RV113:A CPST & SEP HUE SET
2/7 A BUS C
IC138 NJM2233BM
BURST GEN
BF GEN
COLOR DETECT
IC140(1/4) SN74HC132ANS
IC140(2/4) SN74HC132ANS
IC140(3/4) SN74HC132ANS
IC140(4/4) SN74HC132ANS
IC141 LM311M
Q141 2SC1623
2/7 A BUS SC
IC139 NJM2233BM
RV110:A INT BURST LEVEL
RV111:A SEP Y GAIN
RV114:A SEP R-Y GAIN
RV115:A SEP B-Y GAIN
IC142 NJM2246M
IC143 NJM2246M
IC144 NJM2246M
IC180(1/3) MC14053BF
RV121:A Y DC
RV122:A R-Y DC
RV123:A B-Y DC
FL111 LPF 1.5MHz
FL112 LPF 1.5MHz
TP141
TP142
TP143
TP144
E9
1/7 A CPNT Y
1/7 A CPNT V
1/7 A CPNT U
FL113 LPF 5MHz
DL101 DL 280ns
FL114 LPF 1.5MHz
FL115 LPF 1.5MHz
TP131
TP132
TP133
RV117:A CPNT Y GAIN
RV116:A CPNT R-Y GAIN
RV118:A CPNT B-Y GAIN
5V
-5V
5V-2

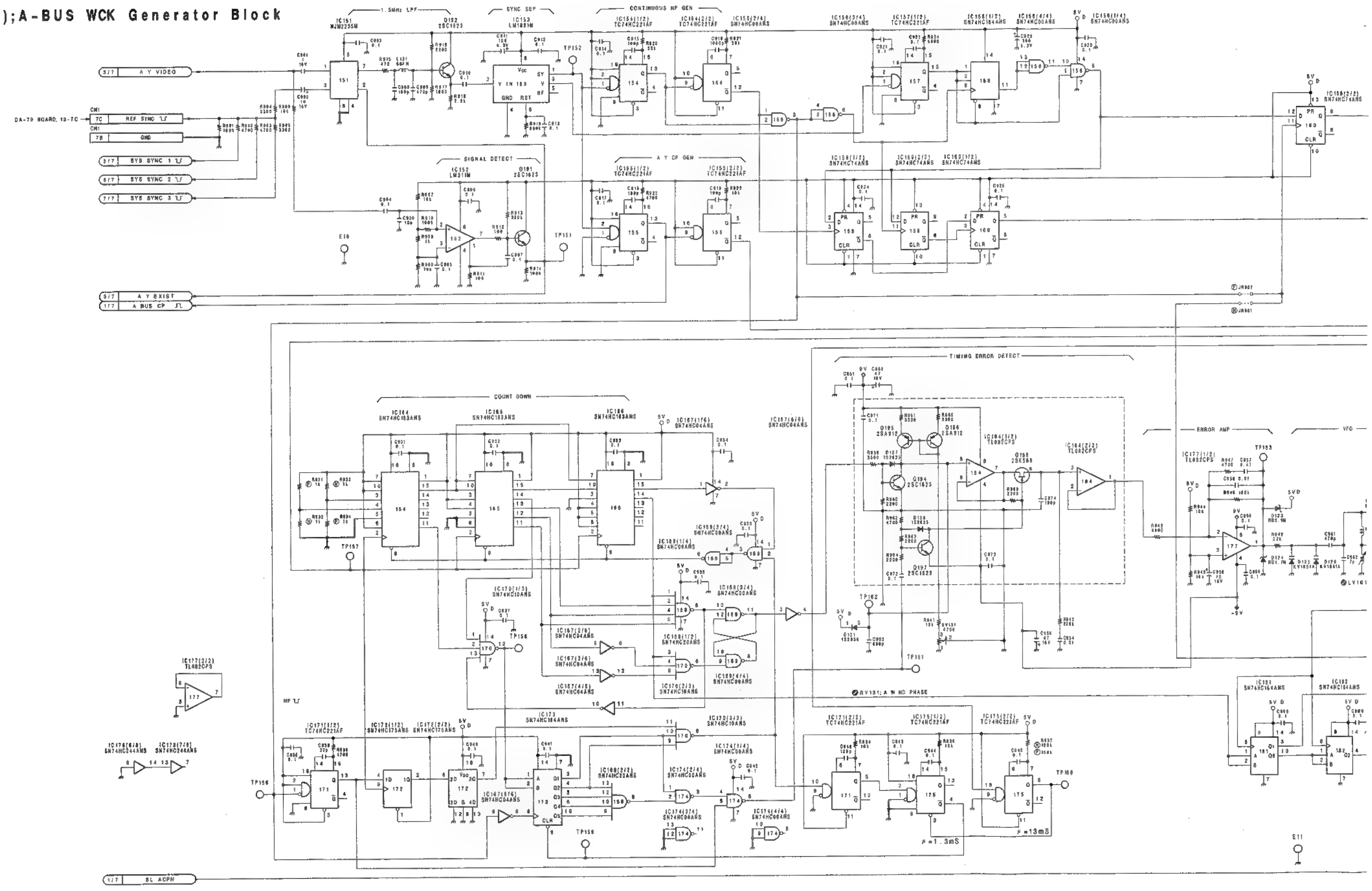
A | B | C | D | E | F | G | H

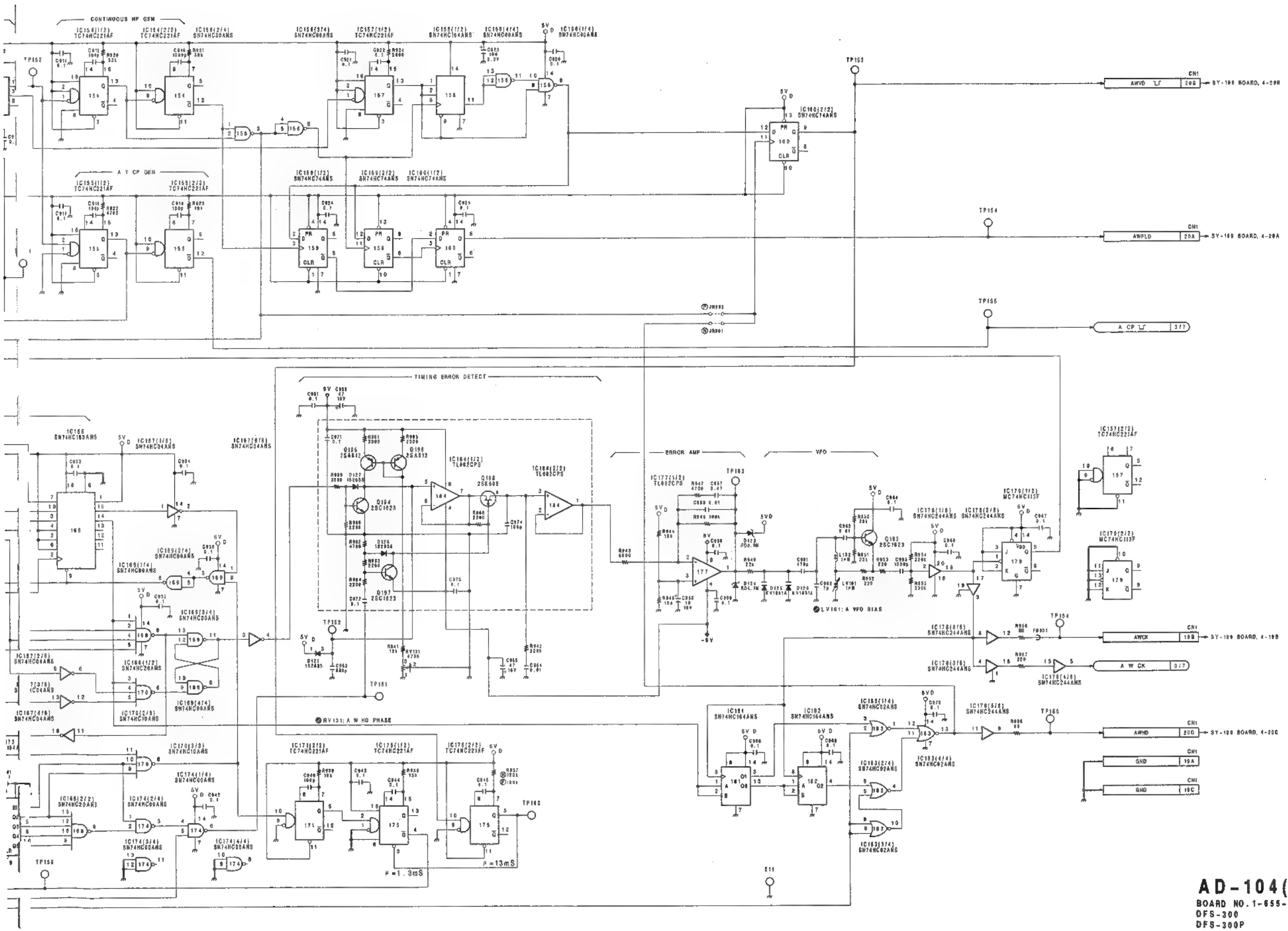

A Y VIDEO 4/7
5V-2 A
IC148 SN74HC374ANS
IC145 CXD1175AM
CN1
AWY 7
AWY 6
AWY 5
AWY 4
AWY 3
AWY 2
AWY 1
AWY 0
GND
29A
29B
29C
28A
28B
28C
27A
27B
27C
TO SY-199 BOARD CN4
IC142 NJM2246M
Q171 2SK508
Q172 2SA812
Q173 2SC1623
TP141
TP142
TP143
TP144
IC180(1/3) MC14053BF
RV111:A SEP Y GAIN
RV121:A Y DC
IC143 NJM2246M
IC146 CXD1175AM
IC149 SN74HC374ANS
RV114:A SEP R-Y GAIN
RV122:A R-Y DC
IC144 NJM2246M
IC147 CXD1175AM
IC150 SN74HC374ANS
RV115:A SEP B-Y GAIN
RV123:A B-Y DC
RV113:A CPST & SEP HUE SET
COLOR DETECT
IC141 LM361M
IC140(3/4) SN74HC132ANS
IC140(4/4) SN74HC132ANS
1:COLOR F LOCK
A Y EXIST 4/7
A W CK 4/7
A CP 4/7
SL ACPN 1/7
IC180(2/3) MC14053BF
IC180(3/3) MC14053BF
FL111 LPF 1.5MHz
FL112 LPF 1.5MHz
FL114 LPF 1.5MHz
FL115 LPF 1.5MHz
TP131
TP132
TP133
TP135
E8
E9
RV119:A CPNT R-Y GAIN
RV118:A CPNT B-Y GAIN
1
2
3
4
5
E
F
G
H
I
J
K
L

AD-104(3/7) BOARD

BOARD NO.1-656-298-11
DFS-300
DFS-300P

AD-104(4/7);A-BUS WCK Generator Block

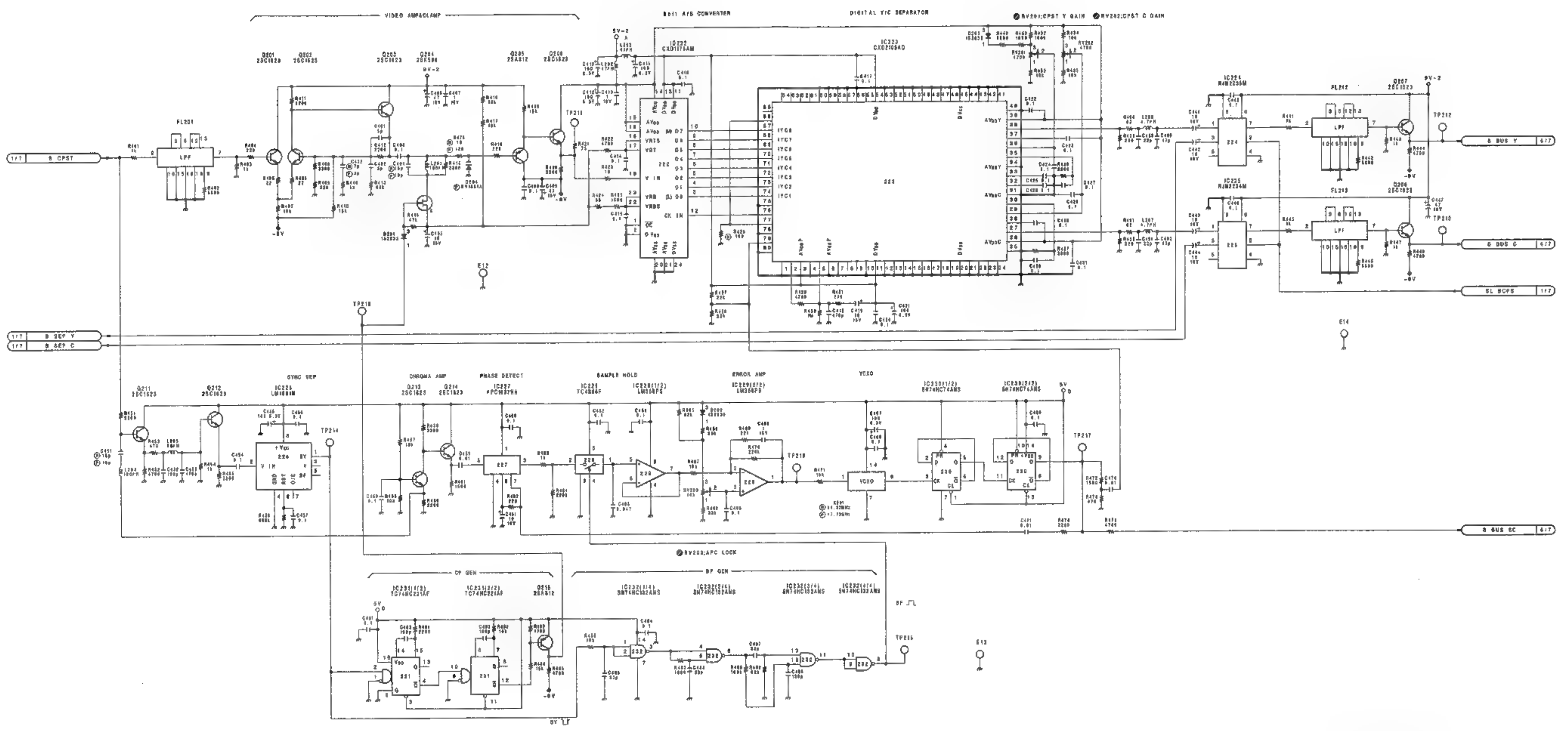

1.5MHz LPF
SYNC SEP
CONTINUOUS HP GEN
SIGNAL DETECT
A Y CP GEN
COUNT DOWN
TIMING ERROR DETECT
ERROR AMP
VFO
IC151 NJM2235M
Q192 2SC1623
IC153 LM1881M
IC152 LM311M
Q191 2SC1623
IC154(1/2) TC74HC221AF
IC154(2/2) TC74HC221AF
IC155(1/2) TC74HC221AF
IC155(2/2) TC74HC221AF
IC156(2/4) SN74HC00ANS
IC156(3/4) SN74HC00ANS
IC157(1/2) TC74HC221AF
IC158(1/2) SN74HC164ANS
IC156(4/4) SN74HC00ANS
IC156(1/4) SN74HC00ANS
IC158(1/2) SN74HC74ANS
IC159(2/2) SN74HC74ANS
IC160(1/2) SN74HC74ANS
IC160(2/2) SN74HC74ANS
IC164 SN74HC163ANS
IC165 SN74HC163ANS
IC166 SN74HC163ANS
IC167(1/6) SN74HC04ANS
IC167(6/6) SN74HC04ANS
IC168(1/4) SN74HC00ANS
IC169(2/4) SN74HC00ANS
IC170(1/3) SN74HC10ANS
IC167(2/6) SN74HC04ANS
IC167(3/6) SN74HC04ANS
IC167(4/6) SN74HC04ANS
IC169(1/2) SN74HC20ANS
IC169(3/4) SN74HC00ANS
IC169(4/4) SN74HC00ANS
IC170(2/3) SN74HC10ANS
Q195 2SA912
Q196 2SA912
Q194 2SC1623
Q197 2SC1623
Q198 2SK58B
IC184(1/2) TL082CPS
IC184(2/2) TL082CPS
IC177(1/2) TL082CPS
IC177(2/2) TL082CPS
IC178(6/8) SN74HC244ANS
IC178(7/8) SN74HC244ANS
IC171(1/2) TC74HC221AF
IC172(1/2) SN74HC175ANS
IC172(2/2) SN74HC175ANS
IC173 SN74HC164ANS
IC167(5/6) SN74HC04ANS
IC180(2/2) SN74HC20ANS
IC170(3/3) SN74HC10ANS
IC174(1/4) SN74HC00ANS
IC174(2/4) SN74HC00ANS
IC174(3/4) SN74HC00ANS
IC174(4/4) SN74HC00ANS
IC171(2/2) TC74HC221AF
IC175(1/2) TC74HC221AF
IC175(2/2) TC74HC221AF
IC181 SN74HC164ANS
IC182 SN74HC164ANS
IC158(2/2) SN74HC74ANS
RV131: A W ND PHASE
τ = 1.3mS
τ = 13mS
3/7 A Y VIDEO
DA-79 BOARD, 13-7C
7C REF SYNC
7B GND
3/7 SYS SYNC 1
6/7 SYS SYNC 2
7/7 SYS SYNC 3
3/7 A Y EXIST
1/7 A BUS CP
1/7 SL ACPN
HP
5V
-5V
TP152
TP151
TP153
TP156
TP157
TP158
TP159
TP160
TP161
TP162
TP163
E10
E11
JR901
JR902
LV101
A
B
C
D
E
F
G
H


CONTINUOUS HP GEN
A Y CP GEN
TIMING ERROR DETECT
ERROR AMP
VFO
TP152
TP153
TP154
TP155
TP156
TP158
TP160
TP161
TP162
TP163
TP165
AWVD
AWFLD
A CP
AWCK
A W CK
AWHD
GND
CN1
SY-199 BOARD, 4-20B
SY-199 BOARD, 4-20A
SY-199 BOARD, 4-19B
SY-199 BOARD, 4-20C
3/7
RV131: A W HD PHASE
LV161: A VFO BIAS
τ=1.3mS
τ=13mS
5V
-9V
1
2
3
4
5
E
F
G
H
I
J
K
L

AD-104(4/7) BOARD

BOARD NO. 1-655-298-11
DFS-300
DFS-300P

AD-104(5/7);B-BUS Y/C Separator Block

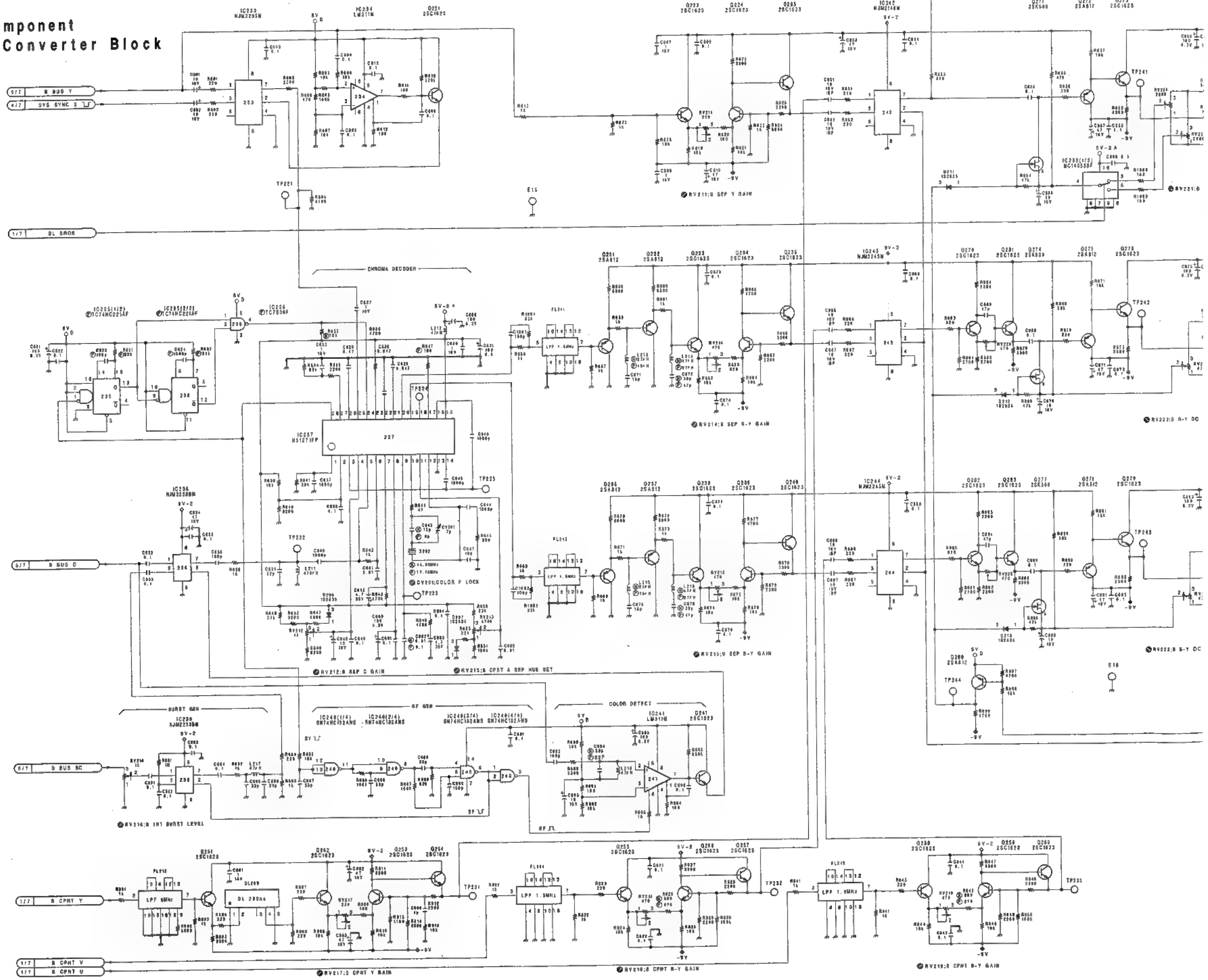

VIDEO AMP&CLAMP
8bit A/D CONVERTER
DIGITAL Y/C SEPARATOR
RV201;CPST Y GAIN
RV202;CPST C GAIN
Q201 2SC1623
Q202 2SC1623
Q203 2SC1623
Q204 2SK596
Q205 2SA812
Q206 2SC1623
IC222 CXD1175AM
IC223 CXD2103AD
IC224 NJM2235M
IC225 NJM2234M
FL211
FL212
FL213
LPF
Q207 2SC1623
Q208 2SC1623
TP211
TP212
TP213
TP216
E12
E14
1/7 B CPST
1/7 B SEP Y
1/7 B SEP C
B BUS Y 4/7
B BUS C 4/7
BL BCPS 1/7
SYNC SEP
Q211 2SC1623
Q212 2SC1623
IC226 LM1881M
CHROMA AMP
Q213 2SC1623
Q214 2SC1623
PHASE DETECT
IC227 μPC1037HA
SAMPLE HOLD
IC221 TC4S66F
IC228(1/2) LM358PS
ERROR AMP
IC229(2/2) LM358PS
VCXO
IC230(1/2) SN74HC74ANS
IC230(2/2) SN74HC74ANS
TP214
TP215
TP217
B BUS SC 4/7
RV203;APC LOCK
CP GEN
BF GEN
IC231(1/2) TC74HC221AF
IC231(2/2) TC74HC221AF
Q215 2SA812
IC232(1/4) SN74HC132ANS
IC232(2/4) SN74HC132ANS
IC232(3/4) SN74HC132ANS
IC232(4/4) SN74HC132ANS
BF
TP215
E13
5V
9V-2
-9V

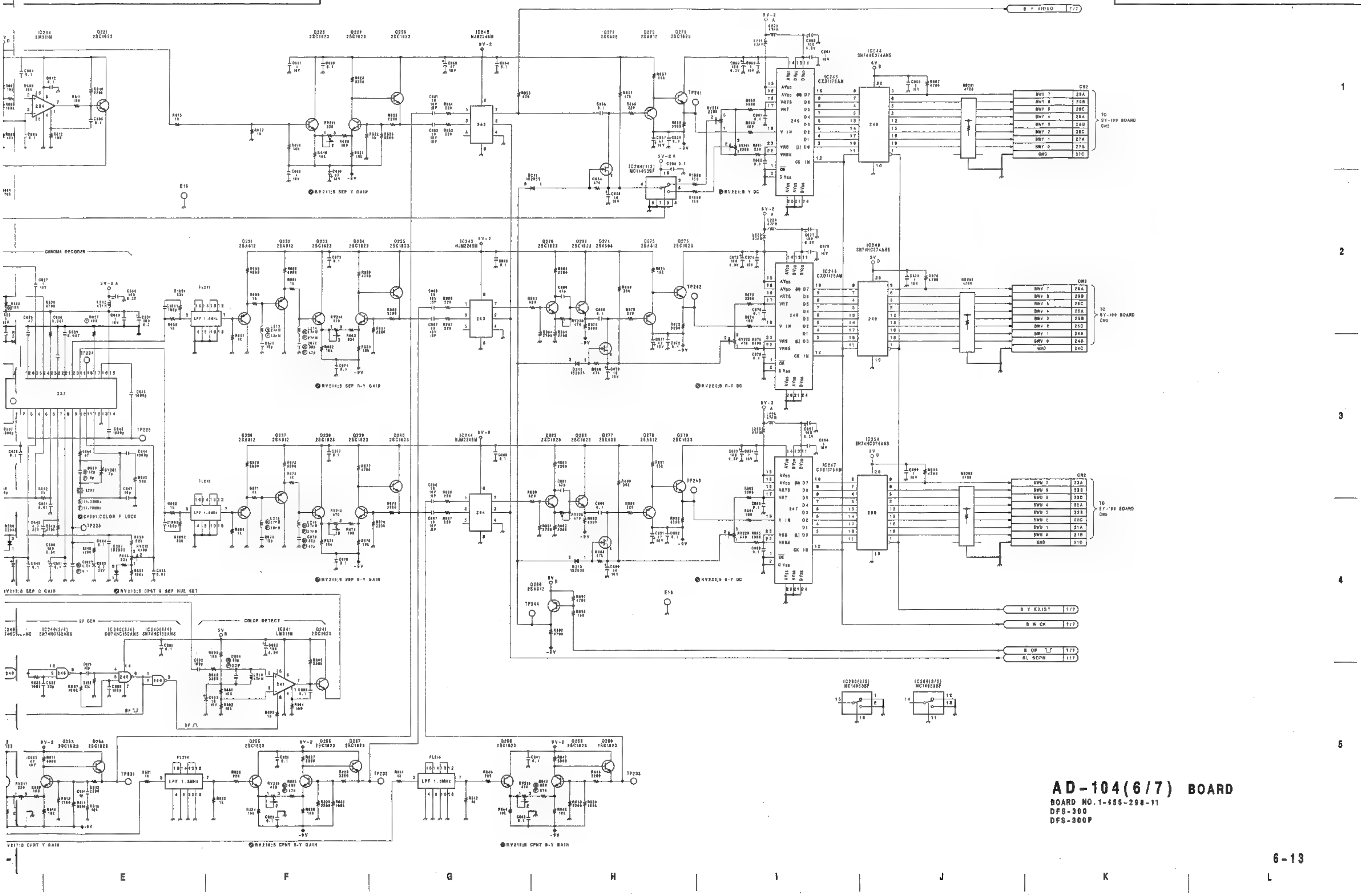
1
2
3
4
5

AD-104(5/7) BOARD
BOARD NO.1-655-298-11
DFS-300
DFS-300P

A B C D E F G H

AD-104(6/7); B-BUS Decoder & Component Process Block, A/D Converter Block

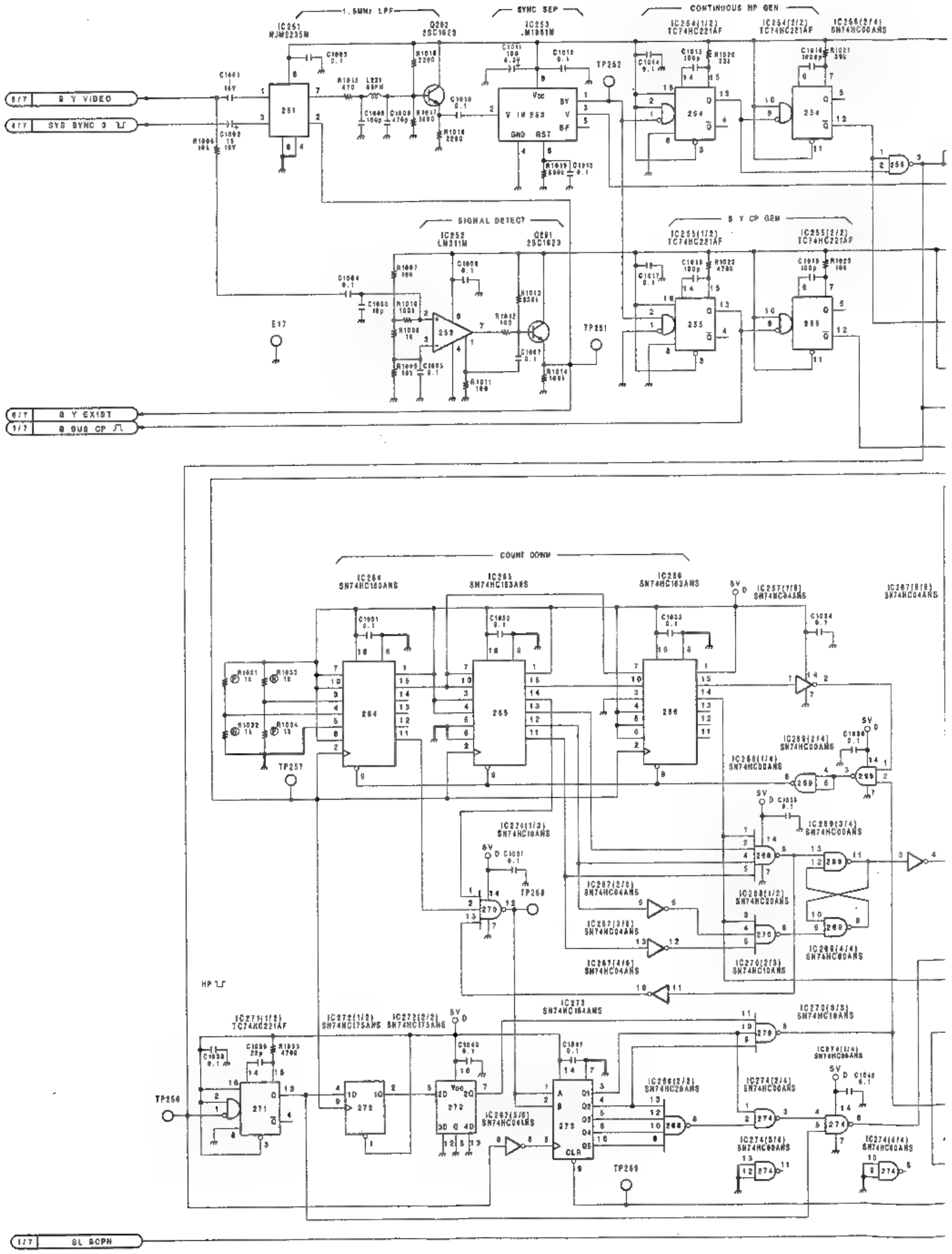

B BUS Y
SYS SYNC 2
BL SRQS
CHROMA DECODER
IC237 M51271FP
CY201:COLOR F LOCK
B BUS C
BURST GEN
SF GEN
COLOR DETECT
B BUS SC
B CPNT Y
B CPNT V
B CPNT U
RV211:B SEP Y GAIN
RV214:B SEP R-Y GAIN
RV215:B SEP B-Y GAIN
RV212:B SEP C GAIN
RV213:B CPST & SEP HUE SET
RV216:B 1ST BURST LEVEL
RV217:B CPNT Y GAIN
RV219:B CPNT B-Y GAIN
RV222:B R-Y DC
RV223:B B-Y DC
A
B
C
D
E
F
G
H

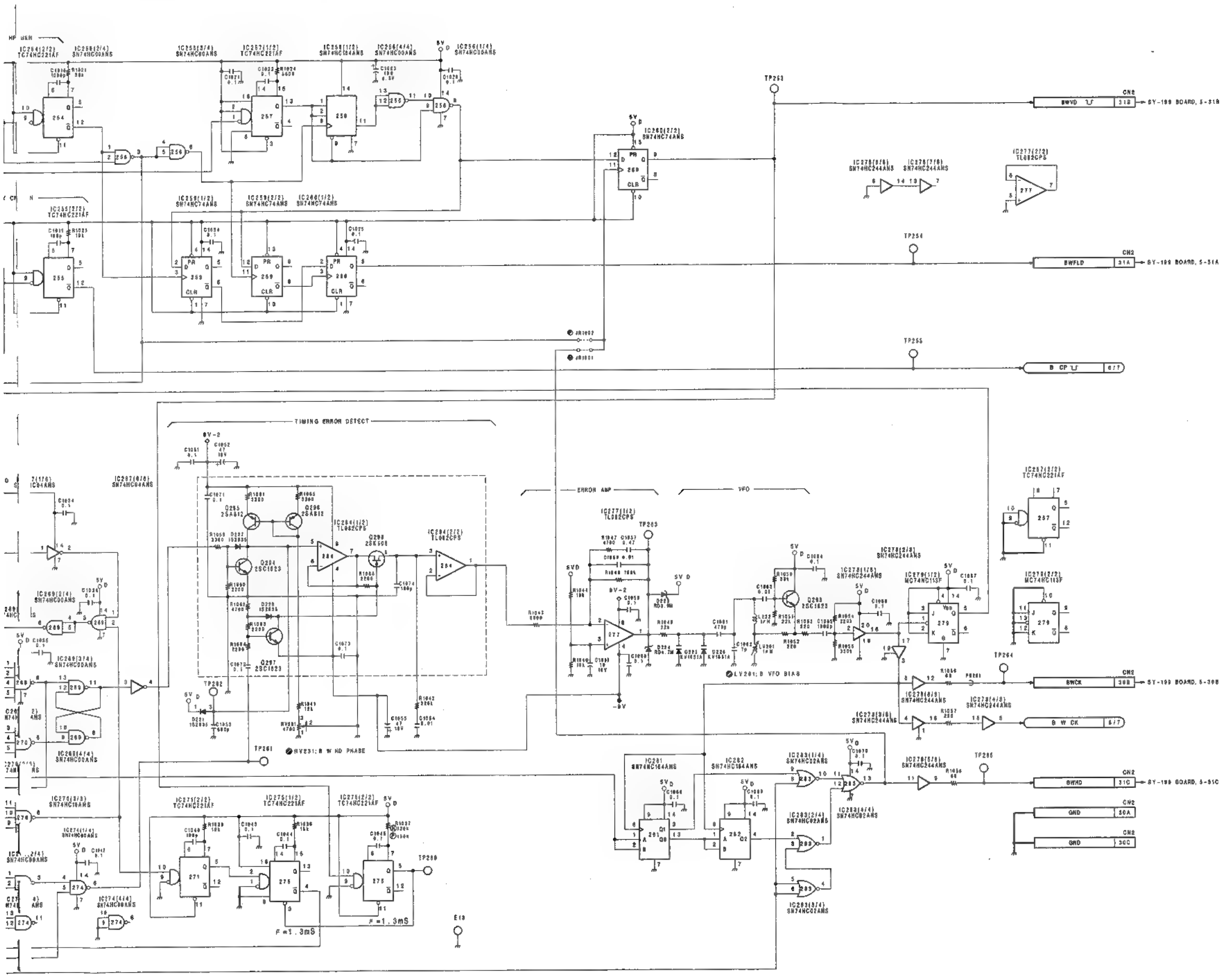

CHROMA DECODER
BF GEN
COLOR DETECT
IC234 LM311N
IC242 NJM2246M
IC243 NJM2245M
IC244 NJM2245M
IC245 CXD1176AM
IC246 CXD1176AM
IC247 CXD1176AM
IC248 SN74HC374ANS
IC249 SN74HC374ANS
IC250 SN74HC374ANS
IC241 LM311N
IC260(1/3) MC14053BF
IC260(2/3) MC14053BF
IC260(3/3) MC14053BF
IC240(2/4) SN74HC132ANS
IC240(3/4) SN74HC132ANS
IC240(4/4) SN74HC132ANS
FL211 LPF 1.5MHz
FL212 LPF 1.5MHz
FL214 LPF 1.5MHz
FL216 LPF 1.5MHz
RV211:B SEP Y GAIN
RV214:B SEP R-Y GAIN
RV215:B SEP B-Y GAIN
RV213:B SEP C GAIN
RV212:B CPST & SEP HUE SET
CV201:COLOR F LOCK
RV221:B Y DC
RV222:B R-Y DC
RV223:B B-Y DC
RV217:B CPST Y GAIN
RV218:B CPST R-Y GAIN
RV219:B CPST B-Y GAIN
B Y VIDEO 7/7
B Y EXIST 7/7
B W CK 7/7
B CP 7/7
SL SCPN 1/7
TO SY-199 BOARD CN5
CN2
BWY 7
BWY 6
BWY 5
BWY 4
BWY 3
BWY 2
BWY 1
BWY 0
BWV 7
BWV 0
BWU 7
BWU 0
GND
TP221
TP222
TP223
TP224
TP225
TP231
TP232
TP233
TP241
TP242
TP243
TP244
E15
E16
5V-2
5V-2A
-9V
5V
1
2
3
4
5
E
F
G
H
I
J
K
L

AD-104(6/7) BOARD

BOARD NO.1-655-298-11
DFS-300
DFS-300P

AD-104(7/7);B-BUS WCK Generator Block


1.5MHz LPF
SYNC SEP
CONTINUOUS HP GEN
IC251 NJM2235M
Q252 2SC1623
IC253 M1851N
IC254(1/2) TC74HC221AF
IC254(2/2) TC74HC221AF
IC256(2/4) SN74HC00ANS
TP252
8/7 B Y VIDEO
4/7 SYS SYNC
SIGNAL DETECT
IC252 LM311M
Q251 2SC1623
B Y CP GEN
IC255(1/2) TC74HC221AF
IC255(2/2) TC74HC221AF
E17
TP251
6/7 B Y EXIST
1/7 B BUS CP
COUNT DOWN
IC264 SN74HC163ANS
IC265 SN74HC163ANS
IC266 SN74HC163ANS
IC267(1/6) SN74HC04ANS
IC267(6/6) SN74HC04ANS
TP257
IC269(2/4) SN74HC00ANS
IC268(1/4) SN74HC00ANS
IC270(1/3) SN74HC10ANS
TP258
IC269(3/4) SN74HC00ANS
IC267(2/6) SN74HC04ANS
IC267(3/6) SN74HC04ANS
IC267(4/6) SN74HC04ANS
IC268(1/2) SN74HC20ANS
IC270(2/3) SN74HC10ANS
IC269(4/4) SN74HC00ANS
HP
IC271(1/2) TC74HC221AF
IC272(1/2) SN74HC175ANS
IC272(2/2) SN74HC175ANS
IC273 SN74HC164ANS
IC270(3/3) SN74HC10ANS
IC267(5/6) SN74HC04ANS
IC268(2/2) SN74HC20ANS
IC274(1/4) SN74HC00ANS
IC274(2/4) SN74HC00ANS
IC274(3/4) SN74HC00ANS
IC274(4/4) SN74HC00ANS
TP256
TP259
1/7 SL SCPN


TIMING ERROR DETECT
ERROR AMP
VFO
TP253
TP254
TP255
TP261
TP262
TP263
TP264
TP265
TP269
E13
BWVD
CN2 31B
SY-199 BOARD, 5-31B
BWFLD
CN2 31A
SY-199 BOARD, 5-31A
B CP
6/7
BWCK
CN2 30B
SY-199 BOARD, 5-30B
B W CK
6/7
BWHD
CN2 31C
SY-199 BOARD, 5-31C
GND
CN2 30A
GND
CN2 30C
IC277(2/2) TL082CPS
IC277(1/2) TL082CPS
IC284(1/2) TL082CPS
IC284(2/2) TL082CPS
IC260(2/2) SN74HC74ANS
IC259(1/2) SN74HC74ANS
IC259(2/2) SN74HC74ANS
IC260(1/2) SN74HC74ANS
IC254(2/2) TC74HC221AF
IC255(2/2) TC74HC221AF
IC257(1/2) TC74HC221AF
IC257(2/2) TC74HC221AF
IC258(1/2) SN74HC164ANS
IC256(4/4) SN74HC00ANS
IC256(1/4) SN74HC00ANS
IC256(2/4) SN74HC00ANS
IC256(3/4) SN74HC00ANS
IC278(2/8) SN74HC244ANS
IC278(1/8) SN74HC244ANS
IC278(4/8) SN74HC244ANS
IC278(3/8) SN74HC244ANS
IC278(5/8) SN74HC244ANS
IC279(1/2) MC74HC113F
IC279(2/2) MC74HC113F
IC281 SN74HC164ANS
IC282 SN74HC164ANS
IC283(1/4) SN74HC02ANS
IC283(2/4) SN74HC02ANS
IC283(3/4) SN74HC02ANS
IC283(4/4) SN74HC02ANS
IC275(2/2) TC74HC221AF
IC275(1/2) TC74HC221AF
IC274(1/4) SN74HC00ANS
IC274(4/4) SN74HC00ANS
IC269(2/4) SN74HC00ANS
IC269(3/4) SN74HC00ANS
IC269(4/4) SN74HC00ANS
IC267(6/6) SN74HC04ANS
Q295 2SA812
Q296 2SA812
Q294 2SC1623
Q297 2SC1623
Q298 2SK508
Q293 2SC1623
RV231: B W HD PHASE
LV201: B VFO BIAS
JR1002
JR1001
5V
5V-2
-5V
τ=1.3mS
τ=1.3mS
1
2
3
4
5
I
J
K
L
M
N
O
P

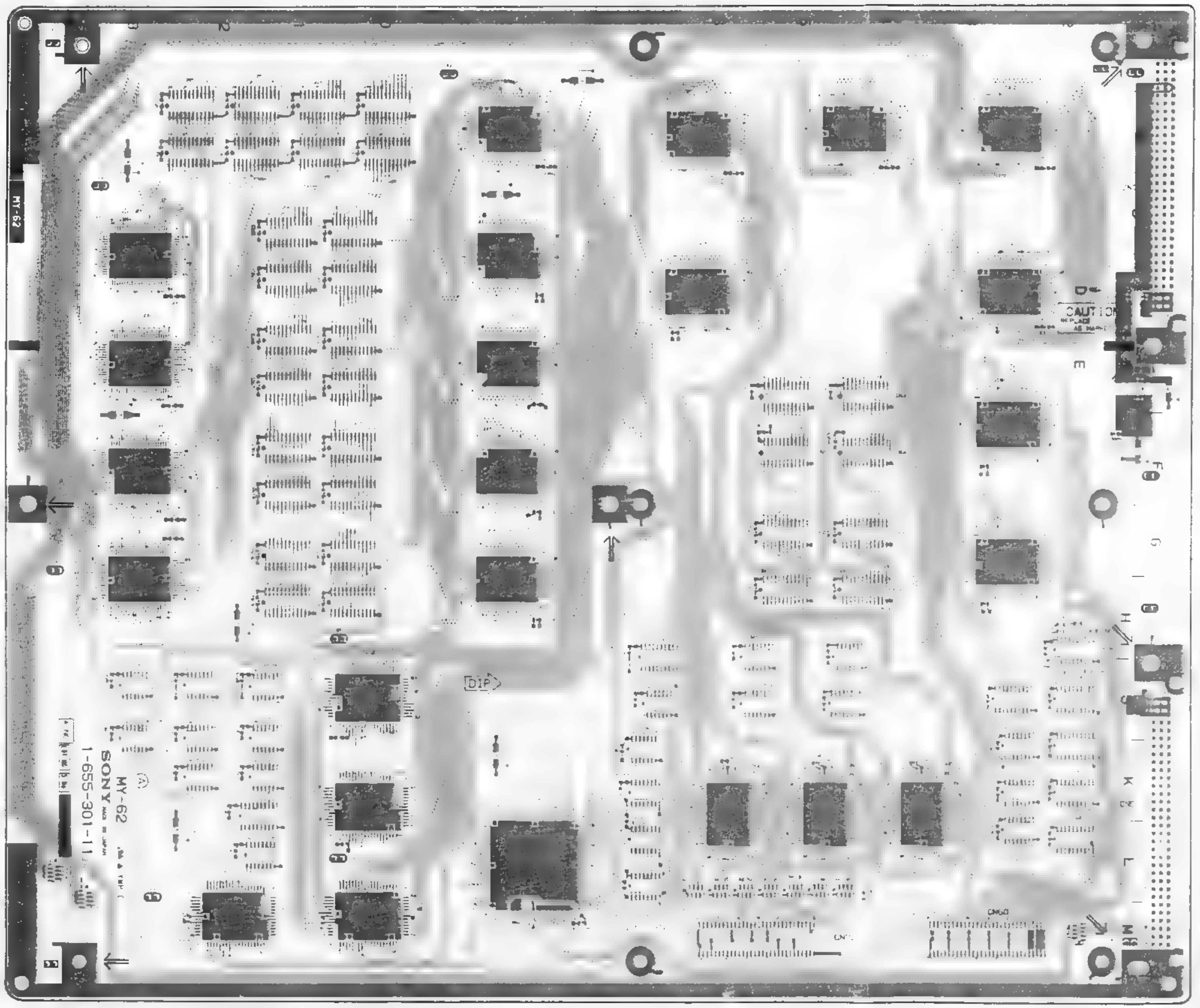
AD-104(7/7) BOARD

BOARD NO.1-655-298-11
DFS-300
DFS-300P

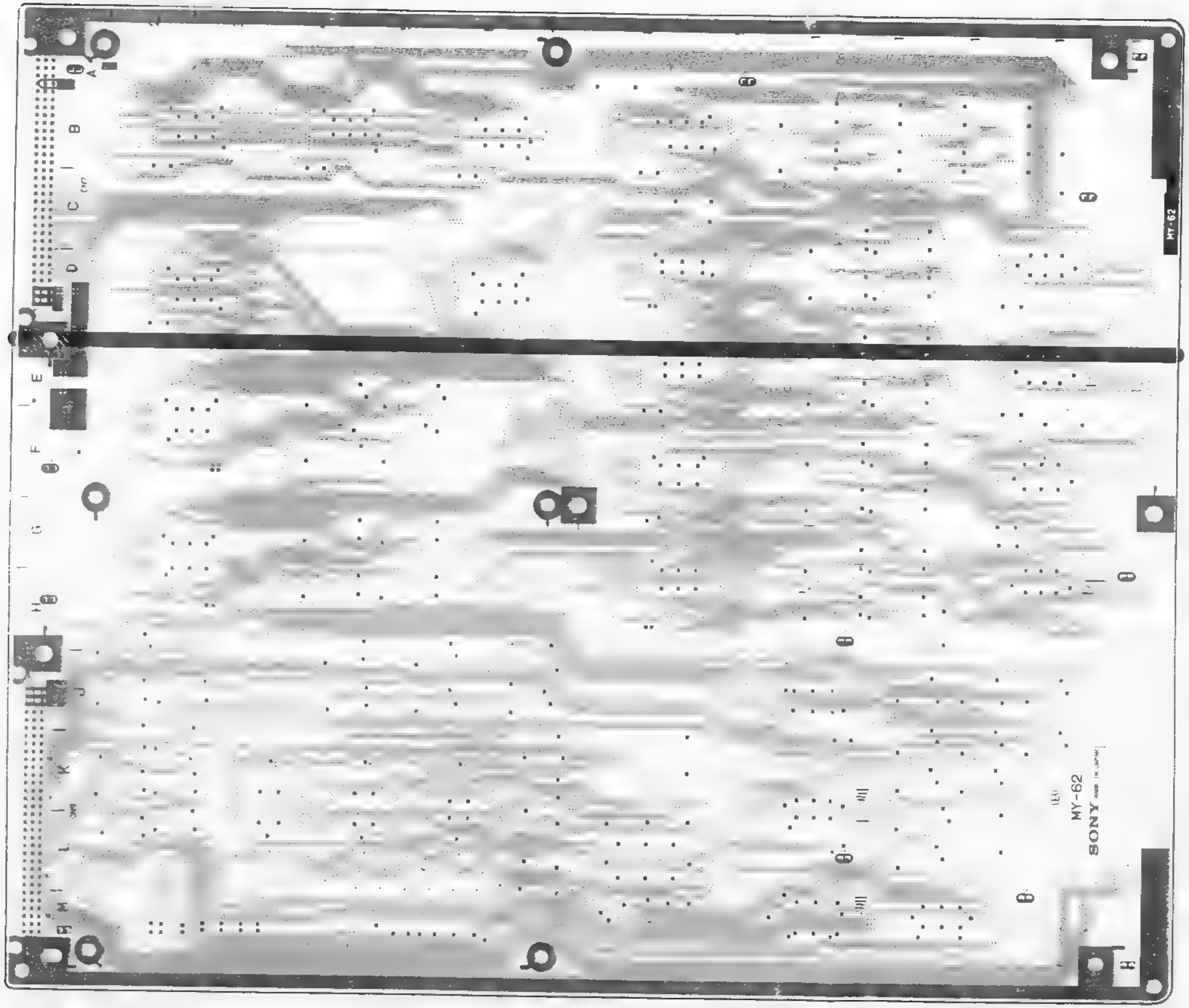
MY-62; Field Memory

MY-62 (1-655-301-11)

CN7	C-1	IC223	B-8
CN9	L-1	IC224	B-12
CN60	M-3	IC225	B-12
CN70	M-6	IC226	B-12
		IC227	B-12
E1	A-1	IC228	B-11
E2	A-9	IC229	B-11
E3	C-13	IC230	B-10
E4	F-1	IC231	B-10
E5	H-11	IC232	E-13
E6	G-14	IC233	C-13
E7	H-1	IC301	F-3
E8	J-11	IC302	G-3
E9	J-13	IC303	E-4
		IC304	F-4
IC101	K-2	IC305	E-5
IC102	J-2	IC306	F-5
IC103	J-2	IC307	H-4
IC104	K-2	IC308	G-4
IC105	H-2	IC309	H-5
IC106	K-7	IC310	G-5
IC107	L-7	IC311	D-3
IC108	H-7	IC312	E-3
IC109	J-4	IC313	E-4
IC110	H-6	IC314	E-6
IC111	H-4	IC315	D-6
IC112	J-6		
IC113	K-7	PS1	C-1
IC114	L-7		
IC115	L-7	RB101	M-2
IC116	L-2	RB102	L-6
IC117	K-2	RB103	L-6
IC118	K-2	RB104	L-6
IC119	J-2	RB105	L-5
IC120	M-10	RB106	L-5
IC121	K-10	RB107	L-5
IC122	J-10	RB108	L-4
IC123	[illegible]	RB201	[illegible]-14
IC124	L-12	RB202	L-14
IC125	L-12		
IC126	L-[illegible]		
IC127	K-12		
IC128	K-11		
IC129	K-11		
IC130	J-11		
IC131	J-12		
IC132	L-13		
IC133	M-12		
IC134	L-8		
IC135	K-8		
IC136	K-[illegible]		
IC137	K-4		
IC201	D-8		
IC202	E-8		
IC203	F-8		
IC204	H-8		
IC205	D-11		
IC206	D-11		
IC207	E-11		
IC208	E-11		
IC209	C-12		
IC210	D-12		
IC211	E-12		
IC212	E-12		
IC213	F-11		
IC214	F-11		
IC215	H-11		
IC216	G-11		
IC217	F-12		
IC218	G-12		
IC219	H-12		
IC220	G-10		
IC221	F-13		
IC222	H-13		



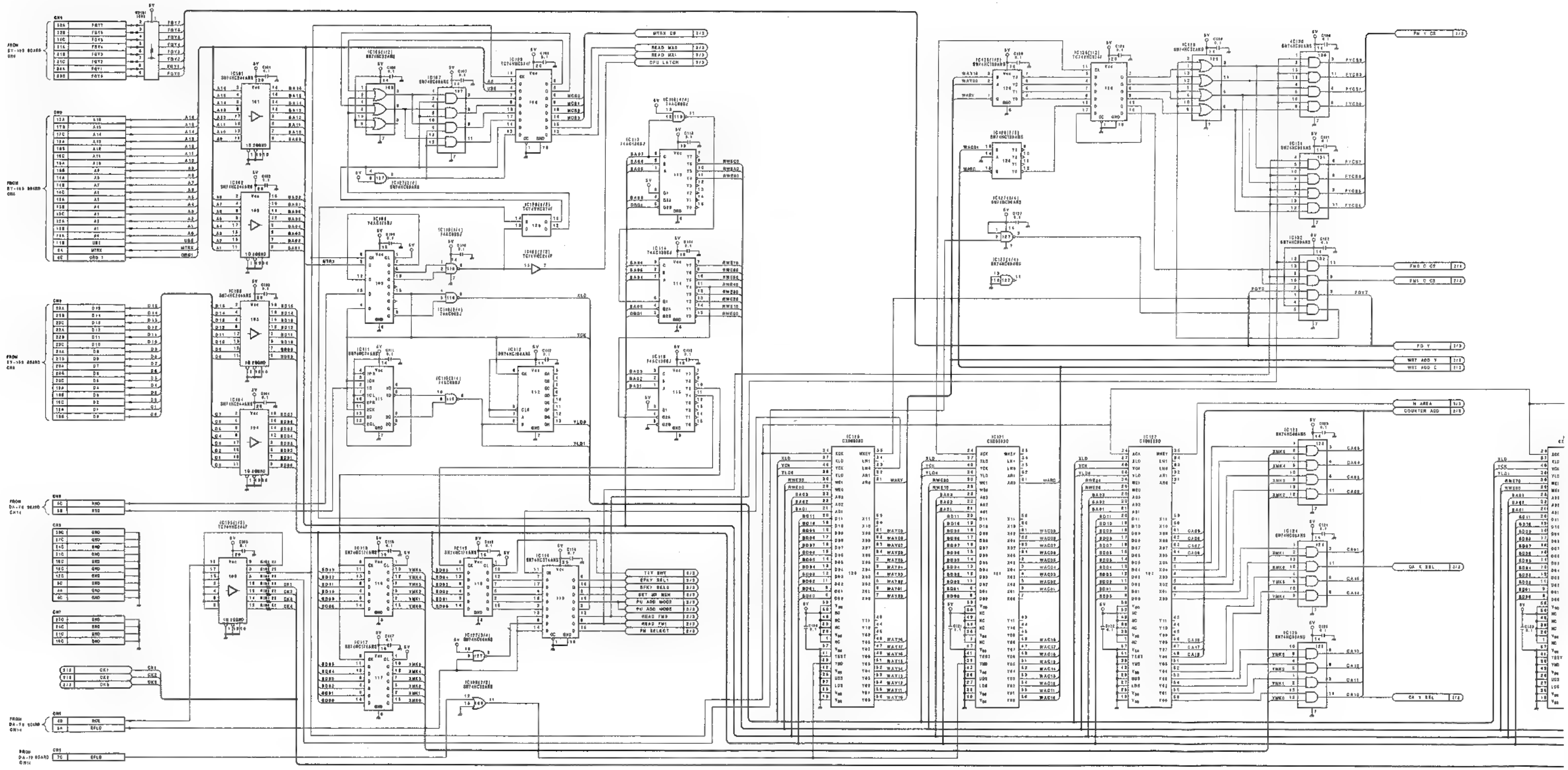
MY-62 -A SIDE-

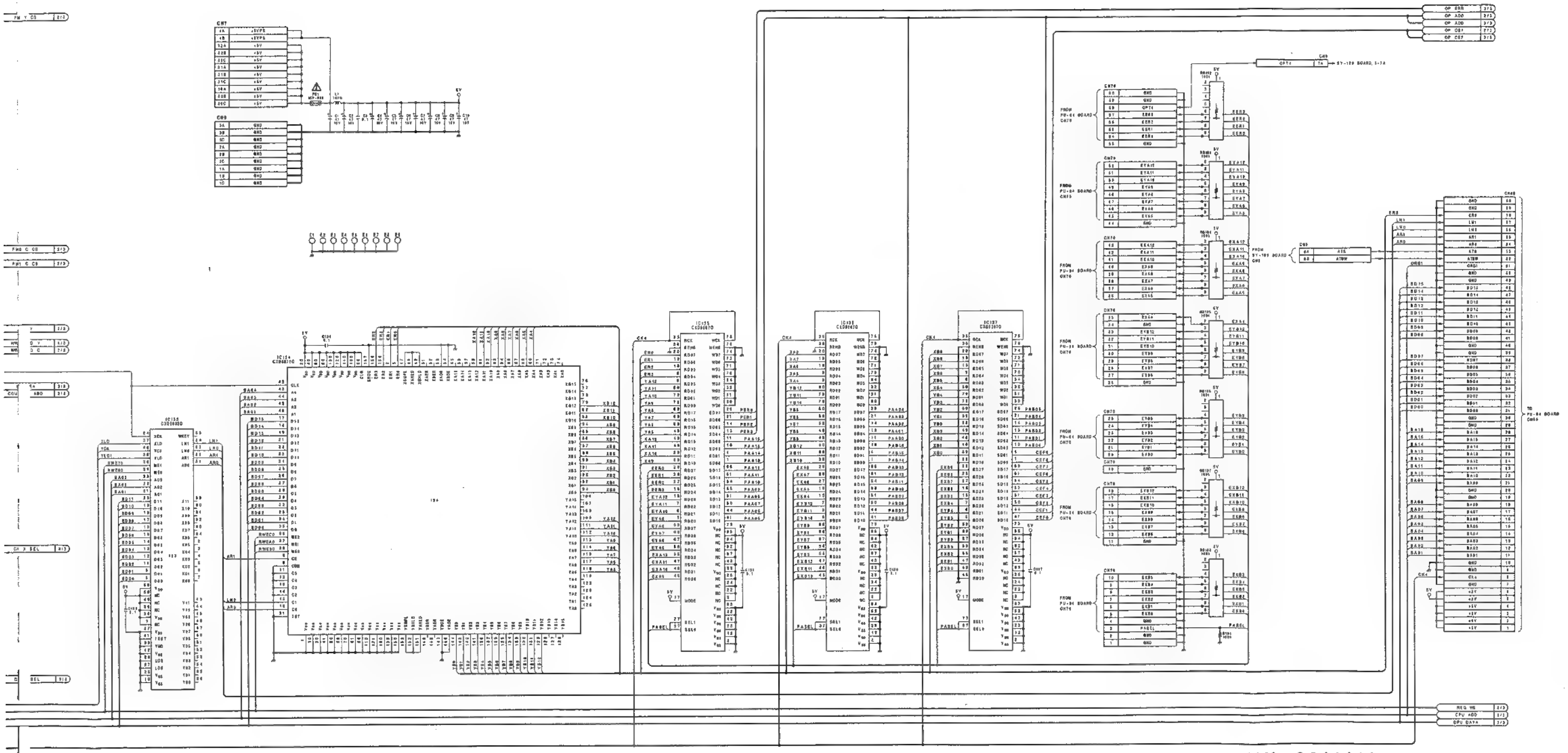

A
B
C
D
E
F
G
H
J
K
M
MY-62
MY-62
SONY MADE IN JAPAN

MY-62 -B SIDE-

1-655-301-11
DFS-300/500P

MY-62(1/3);Address Generator

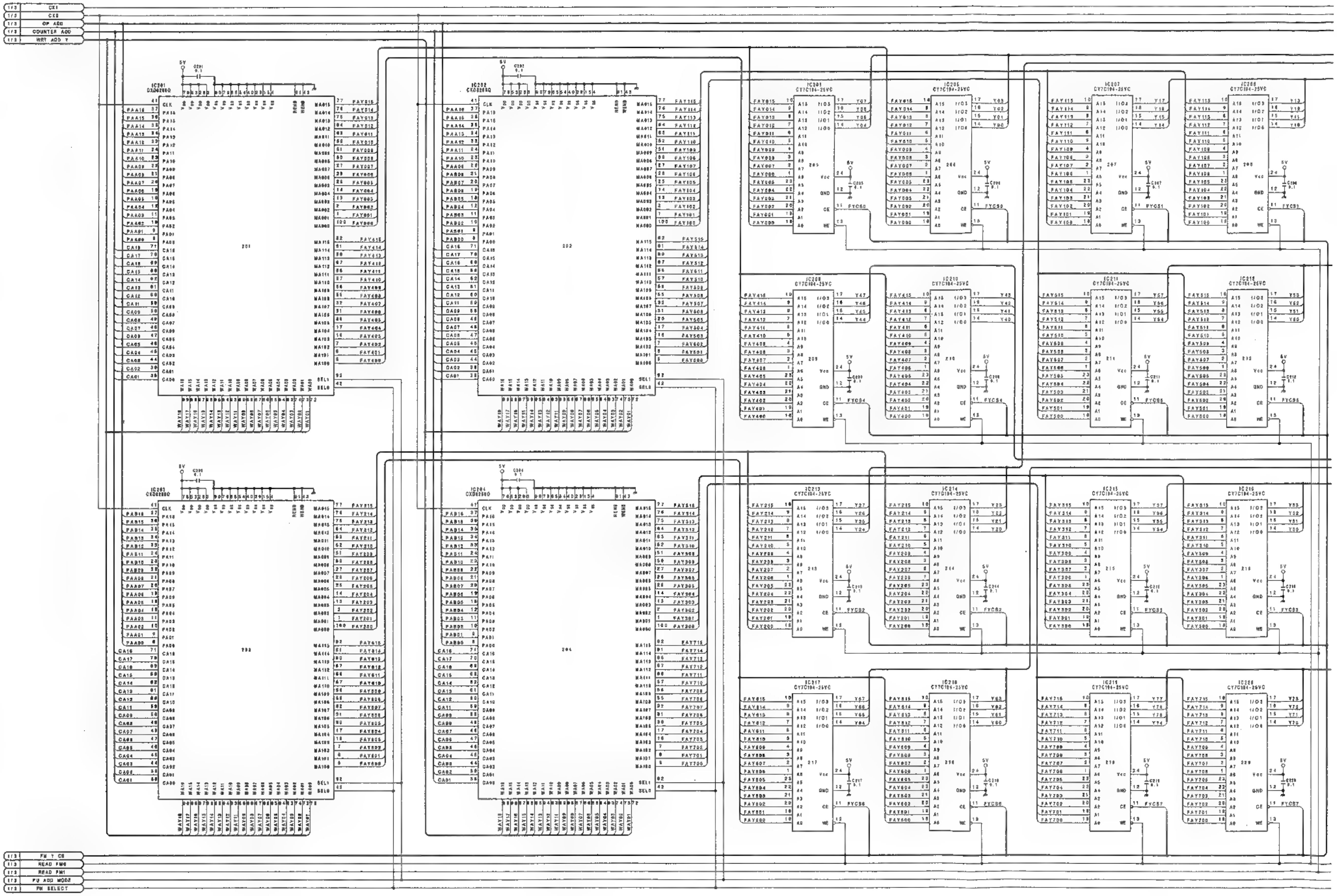



CN7
CN9
OP ERR
OP ADD
OP CEF
REG WE
CPU ADD
CPU DATA
FROM PU-84 BOARD
TO PU-84 BOARD
SY-189 BOARD

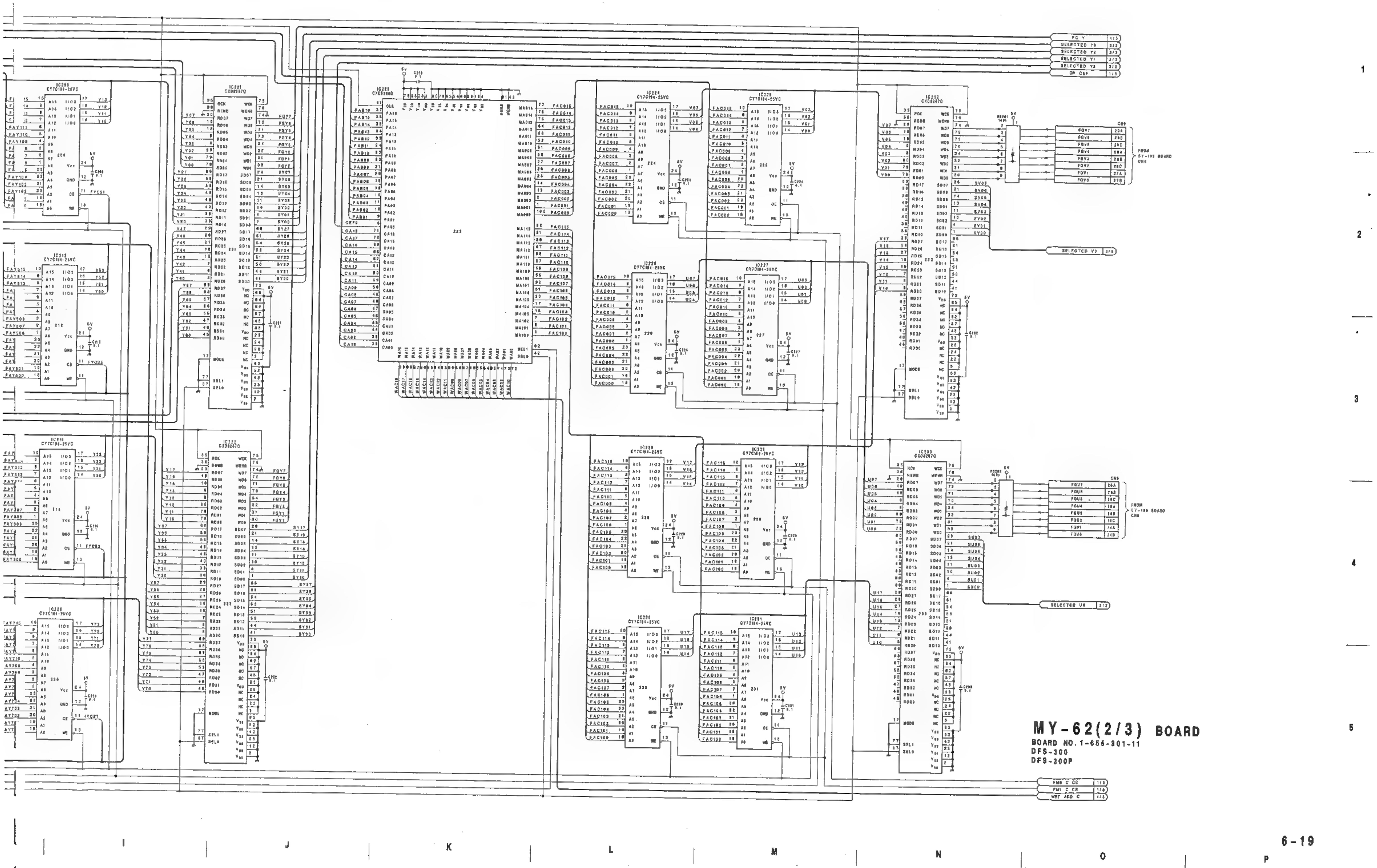
MY-62(1/3) BOARD

BOARD NO. 1-655-301-11
DFS-300
DFS-300P

MY-62(2/3);Frame Memory

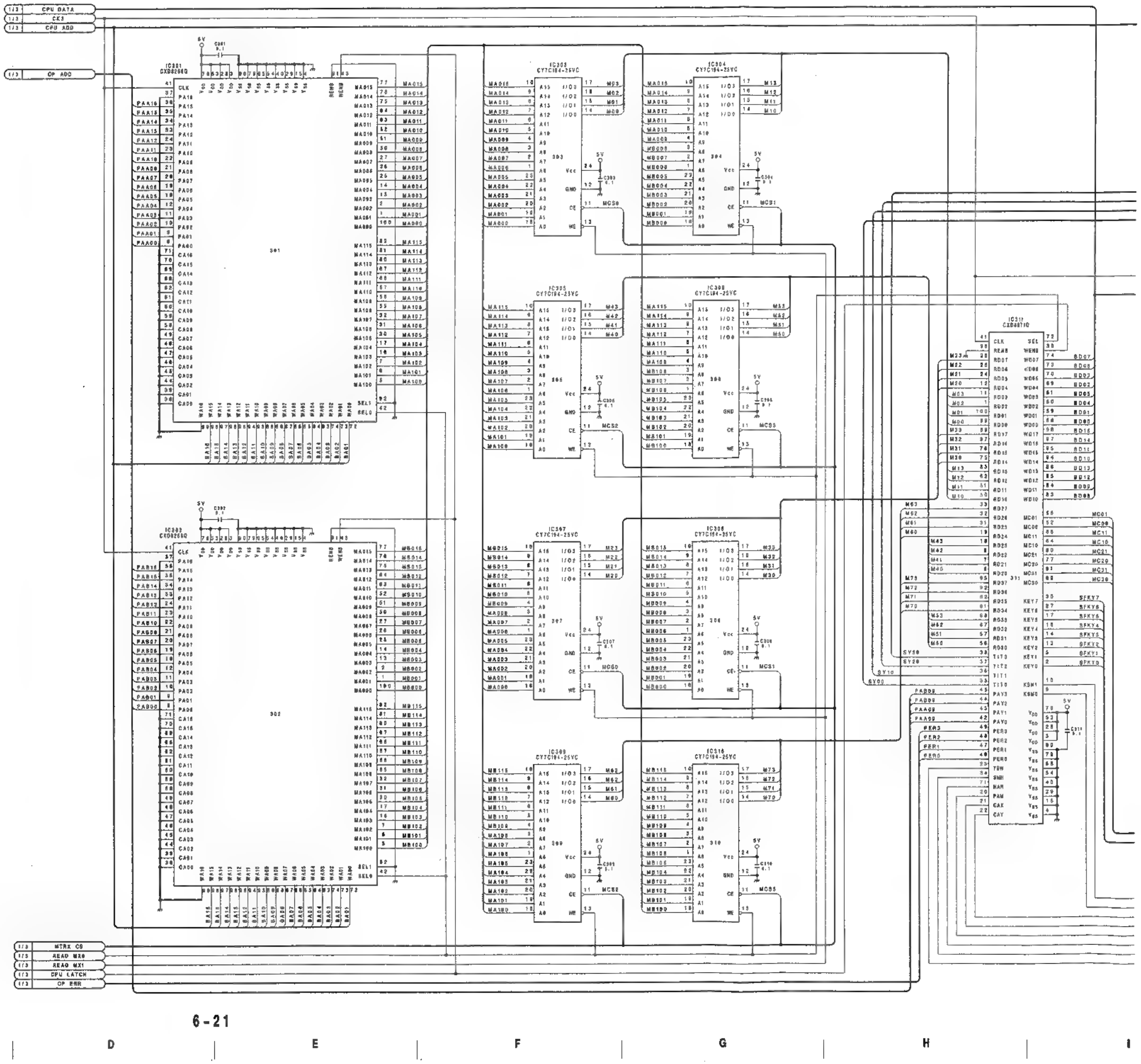

1/3 CK1
1/3 CK2
1/3 OP ADD
1/3 COUNTER ADD
1/3 WRT ADD Y
IC201 CXD8288Q
IC202 CXD8288Q
IC203 CXD8288Q
IC204 CXD8288Q
5V
CLK
SEL1
SEL0
IC205 CY7C194-25VC
IC206 CY7C194-25VC
IC207 CY7C194-25VC
IC208 CY7C194-25VC
IC209 CY7C194-25VC
IC210 CY7C194-25VC
IC211 CY7C194-25VC
IC212 CY7C194-25VC
IC213 CY7C194-25VC
IC214 CY7C194-25VC
IC215 CY7C194-25VC
IC216 CY7C194-25VC
IC217 CY7C194-25VC
IC218 CY7C194-25VC
IC219 CY7C194-25VC
IC220 CY7C194-25VC
Vcc
GND
CE
WE
1/3 FM Y CS
1/3 READ FM0
1/3 READ FM1
1/3 FU ADD MODE
1/3 FM SELECT

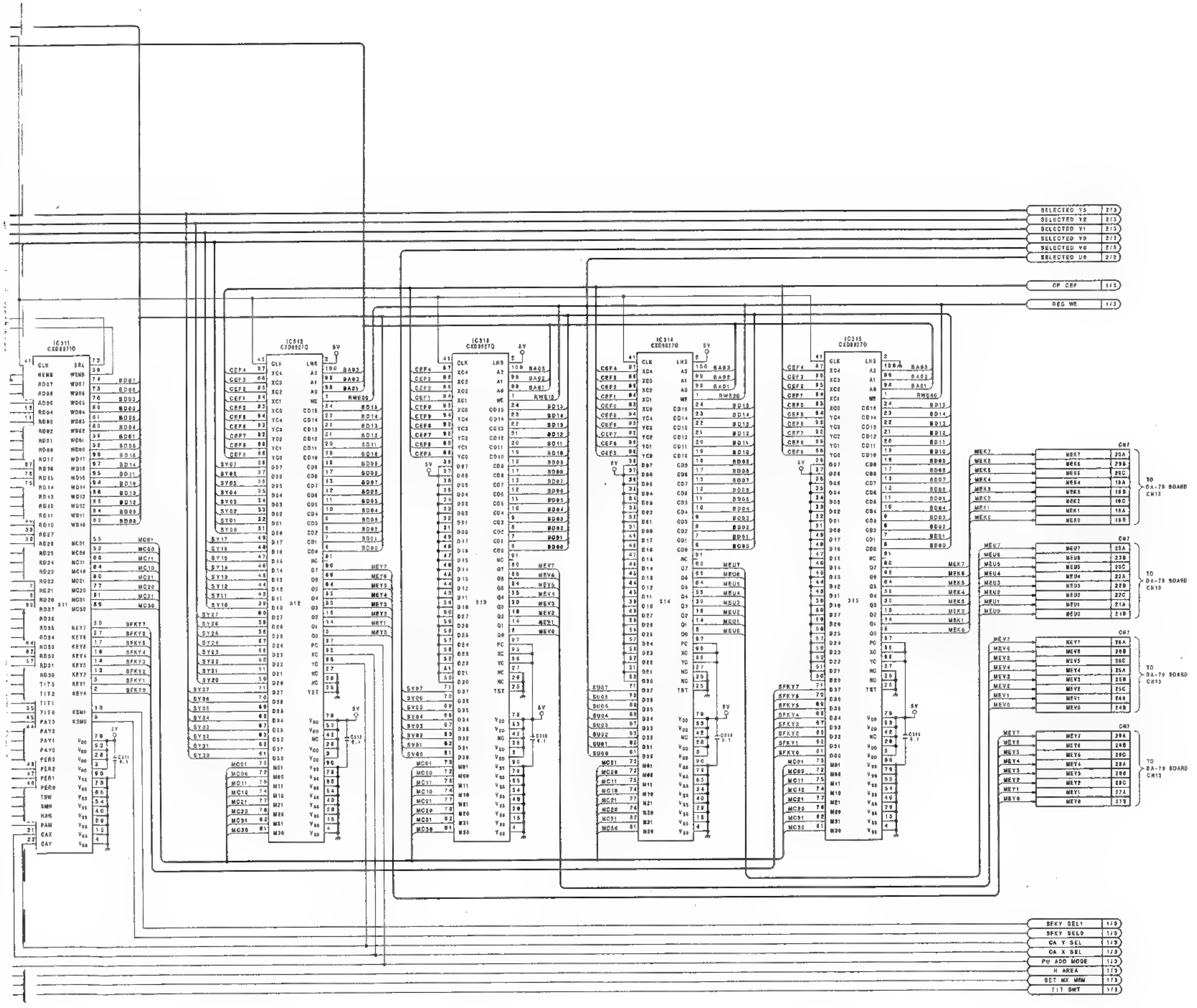
A B C D E F G H I


IC221 CXD8257Q
IC222 CXD8257Q
IC223 CXD8256Q
IC224 CY7C194-25VC
IC225 CY7C194-25VC
IC226 CY7C194-25VC
IC227 CY7C194-25VC
IC228 CY7C194-25VC
IC229 CY7C194-25VC
IC230 CY7C194-25VC
IC231 CY7C194-25VC
IC232 CXD8257Q
IC233 CXD8257Q
FG Y
SELECTED Y0
SELECTED Y2
SELECTED Y1
SELECTED Y3
OP CSY
SELECTED V0
SELECTED U0
FROM SY-195 BOARD CN5
FM0 C CS
FM1 C CS
WRT ADD C
5V
1
2
3
4
5
I
J
K
L
M
N
O
P

MY-62(2/3) BOARD
BOARD NO. 1-655-301-11
DFS-300
DFS-300P

MY-62(3/3);Interpolator


CPU DATA
CK3
CPU ADD
OP ADD
IC301
CXD8296Q
IC302
CXD8296Q
IC303
CY7C194-25VC
IC304
CY7C194-25VC
IC305
CY7C194-25VC
IC306
CY7C194-25VC
IC307
CY7C194-25VC
IC308
CY7C194-25VC
IC309
CY7C194-25VC
IC310
CY7C194-25VC
IC311
CXD8871Q
5V
C301
0.1
C302
0.1
MCS0
MCS1
MCS2
MCS3
MTRX CS
READ MX0
READ MX1
CPU LATCH
OP ERR
A
B
C
D
E
F
G
H
I


IC311
IC312
IC313
IC314
IC315
5V
SELECTED Y5 2/3
SELECTED Y2 2/3
SELECTED Y1 2/3
SELECTED Y0 2/3
SELECTED V0 2/3
SELECTED U0 2/3
OP CEF 1/3
REG WE 1/3
CN7
MEK7 20A
MEK6 20B
MEK5 20C
MEK4 19A
MEK3 19B
MEK2 19C
MEK1 18A
MEK0 18B
TO DA-79 BOARD CN13
CN7
MEU7 23A
MEU6 23B
MEU5 23C
MEU4 22A
MEU3 22B
MEU2 22C
MEU1 21A
MEU0 21B
TO DA-79 BOARD CN13
CN7
MEV7 26A
MEV6 26B
MEV5 26C
MEV4 25A
MEV3 25B
MEV2 25C
MEV1 24A
MEV0 24B
TO DA-79 BOARD CN13
CN7
MEY7 29A
MEY6 29B
MEY5 29C
MEY4 28A
MEY3 28B
MEY2 28C
MEY1 27A
MEY0 27B
TO DA-79 BOARD CN13
SFKY SEL1 1/3
SFKY SEL0 1/3
CA Y SEL 1/3
CA X SEL 1/3
PU ADD MODE 1/3
H AREA 1/3
SET MX MEM 1/3
TIT SWT 1/3
1
2
3
4
5
I
J
K
L
M
N
O
P

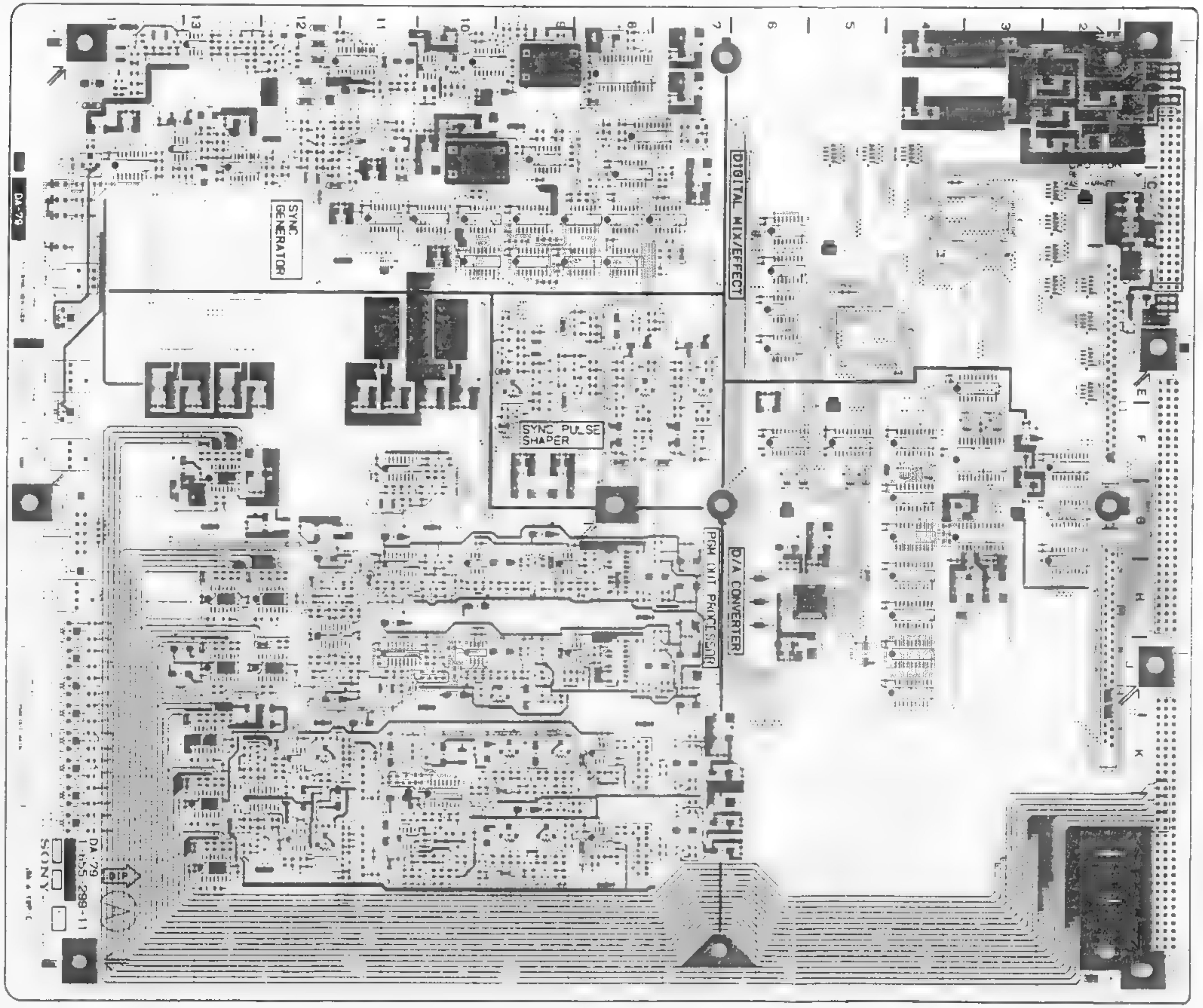
MY-62(3/3) BOARD
BOARD NO.1-655-301-11
DFS-300
DFS-300P

DA-79 (1-655-289-11)

CN13	C-1
CN14	G-1
CN15	L-1
CN40	J-2
CN50	E-2
DL701	K-11
DL702	L-11
D102	A-10
D103	A-9
D104	C-7
D105	D-14
D106	C-14
D301	C-14
D701	C-14
E101	A-14
E102	B-12
E103	B-9
E104	D-11
E301	C-2
E302	F-5
E303	D-5
E304	G-6
E305	G-3
E401	H-8
E402	[illegible]-10
E403	G-10
E404	G-13
E405	K-8
E406	M-8
E407	K-12
E408	M-12
FB101	B-7
FB102	B-7
FL401	J-8
FL402	H-8
FL403	K-8
FL404	L-8
FL405	L-10
FL406	F-8
FL407	F-7
IC101	[illegible]
IC102	[illegible]
IC103	[illegible]
IC105	[illegible]
IC106	[illegible]
IC107	[illegible]
IC108	[illegible]
IC109	[illegible]
IC110	[illegible]
IC111	[illegible]
IC112	[illegible]
IC113	[illegible]
IC114	[illegible]
IC115	[illegible]
IC117	[illegible]
IC118	[illegible]
IC119	[illegible]
IC120	[illegible]
IC121	[illegible]
IC122	[illegible]
IC123	[illegible]
IC124	[illegible]
IC125	[illegible]
IC126	[illegible]
IC301	[illegible]
IC302	[illegible]
IC303	[illegible]
IC304	E-5
IC305	E-6
IC306	[illegible]
IC307	D-6
IC308	F-4
IC309	F-5
IC310	F-8
IC311	E-3
IC312	F-3
IC313	H-5
IC314	G-3
IC315	G-4
IC316	G-4
IC317	H-4
IC318	H-4
IC319	J-4
IC320	J-4
IC401	[illegible]-8
IC402	H-9
IC403	H-10
IC404	H-11
IC405	J-10
IC406	J-11
IC407	J-13
IC408	[illegible]-13
IC409	M-13
IC410	K-8
IC411	L-8
IC412	L-10
IC413	L-11
IC414	F-11
IC415	G-13
IC701	E-10
IC702	E-13
IC703	E-11
IC704	E-14
IC705	[illegible]-12
IC706	J-12
IC707	H-12
IC708	K-12
IC709	L-13
IC710	K-13
IC711	L-12
IC712	L-15
IC801	H-2
IC802	G-2
IC803	F-2
PS101	A-1
PS102	B-1
PS301	D-1
Q101	A-14
Q102	A-14
Q103	A-14
Q104	A-13
Q105	A-13
Q106	A-12
Q107	A-12
Q108	A-12
Q121	B-12
Q122	B-12
Q123	B-11
Q124	C-11
Q125	C-8
Q126	B-11
Q127	B-8
Q401	J-7
Q402	J-7
Q403	G-7
Q404	H-7
Q405	H-8
Q406	H-9
Q407	H-9
Q408	H-10
Q409	H-10
Q410	H-10
Q411	J-9
Q412	J-9
Q413	[illegible]-9
Q414	J-10
Q415	J-10
Q416	J-10
Q417	K-7
Q418	K-7
Q419	L-9
Q420	K-8
Q421	K-8
Q422	K-8
Q423	K-10
Q424	L-7
Q425	L-7
Q426	[illegible]-8
Q427	M-9
Q428	[illegible]-9
Q429	L-12
Q430	L-13
Q431	K-11
Q432	L-12
Q433	M-12
Q434	E-8
Q435	E-9
Q436	E-8
Q437	F-8
Q438	E-8
Q439	E-8
Q440	E-8
Q441	E-8
Q442	E-8
Q443	E-8
Q444	F-8
Q445	E-7
Q446	E-7
Q447	F-7
Q448	F-12
Q449	G-12
Q450	[illegible]
Q701	[illegible]
Q702	[illegible]-12
Q703	[illegible]
Q704	[illegible]
Q705	[illegible]
Q706	[illegible]
Q707	K-12
Q708	K-12
Q709	[illegible]
Q710	[illegible]-12
Q711	[illegible]
RB101	[illegible]
RB301	E-2
RB302	E-2
RB303	D-2
RB304	D-2
RB305	B-5
RB306	B-4
RB307	B-5
RB308	C-2
RB309	C-2
RB310	C-2
RB311	C-2
RB312	C-8
RB313	F-3
RB314	F-3
RB315	F-4
RB316	F-4
RB317	F-5
RB318	F-5
RB319	F-6
RB320	F-5
RV101	A-10
RV102	D-14
RV103	F-14
RV104	C-14
RV401	J-8
RV402	K-14
RV403	K-14
RV404	L-14
○ RV405	K-9
RV406	K-9
RV407	L-9
RV408	L-8
RV409	E-8
RV410	E-8
RV411	E-7
RV412	L-14
RV701	H-14
RV702	J-14
RV703	K-12
RV704	J-14
RV705	L-12
RV706	K-14
S101	D-14
S102	E-14
S301	G-14
S302	F-14
S303	H-14
S401	K-10
TH101	B-11
TP101	B-14
TP102	A-12
TP103	B-12
TP104	A-12
TP105	A-12
TP106	A-12
TP107	A-11
TP108	B-8
TP109	C-12
TP110	C-[illegible]
TP111	D-[illegible]
TP301	H-5
TP302	F-4
TP303	H-[illegible]
TP304	H-5
TP305	H-6
TP306	H-5
TP401	J-7
TP402	H-6
TP403	[illegible]
TP404	[illegible]
TP405	H-[illegible]
TP406	[illegible]
TP407	K-6
TP408	K-7
TP409	L-6
TP410	M-5
TP411	[illegible]
TP412	E-7
TP413	F-7
TP414	E-5
TP415	F-7
TP416	F-8
TP417	F-7
TP418	F-12
TP701	J-12
TP702	H-12
TP703	H-13
TP704	K-12
TP705	K-13
TP706	L-12
TP707	K-13
VCO101	A-9
VCO102	B-10

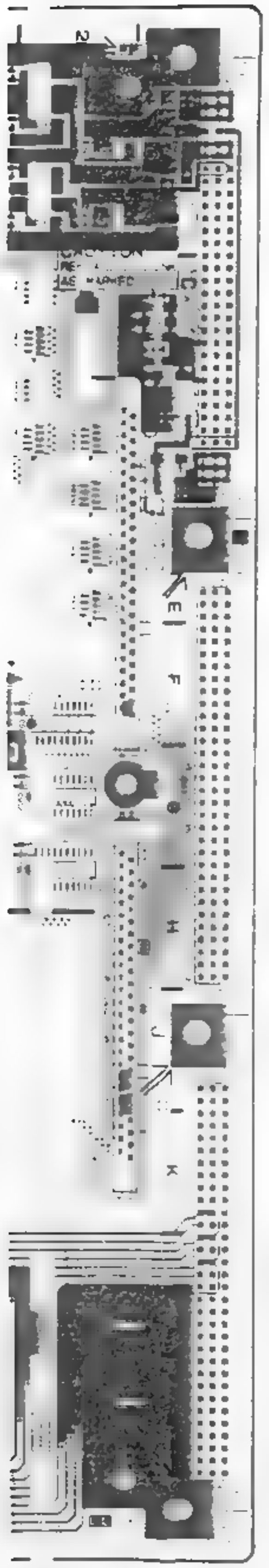
○ PAL ONLY

DA-79; D/A Converter

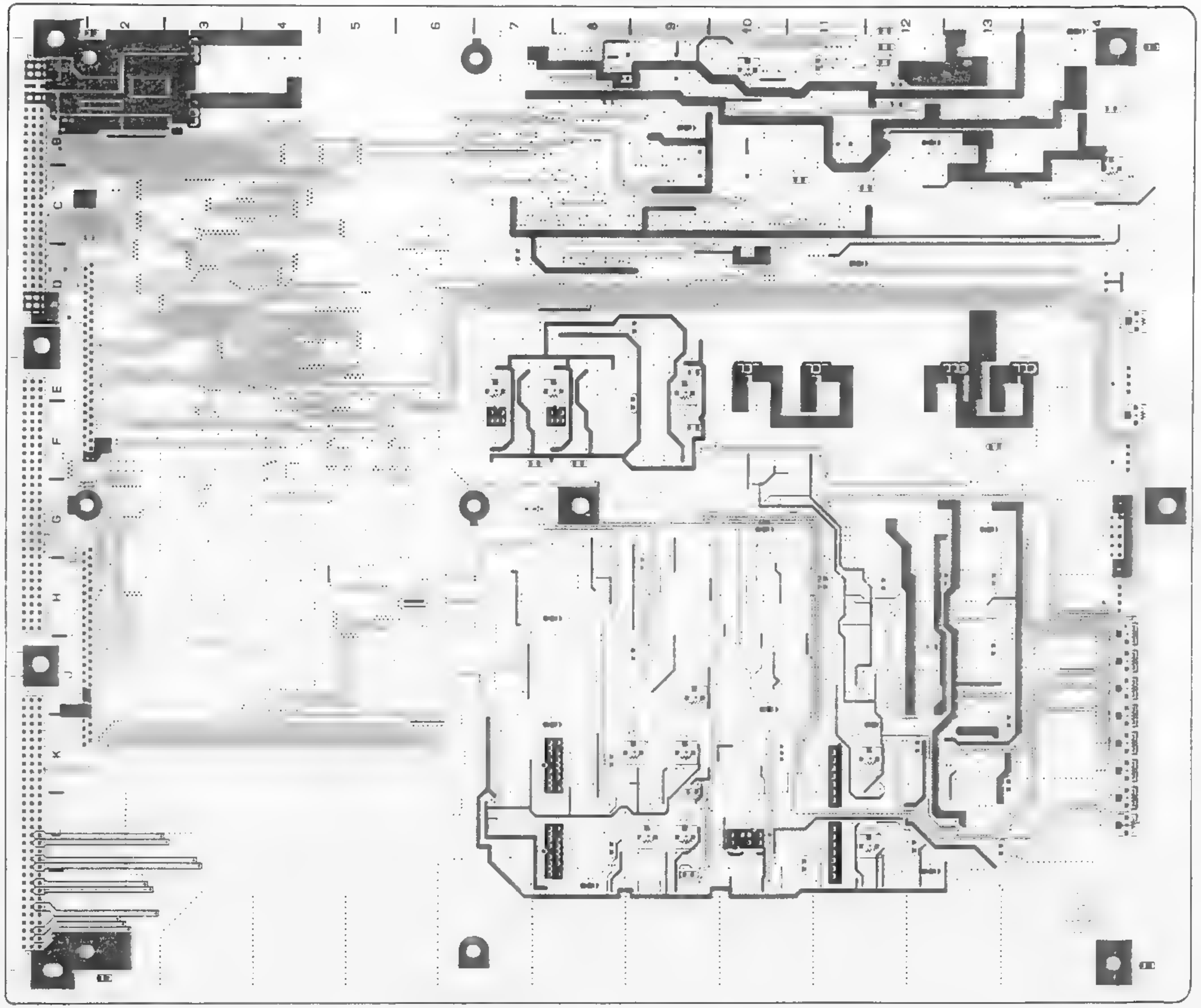


DA-79 -A SIDE-

PROCESS UNIT DA-79 DA-79 PROCESS UNIT

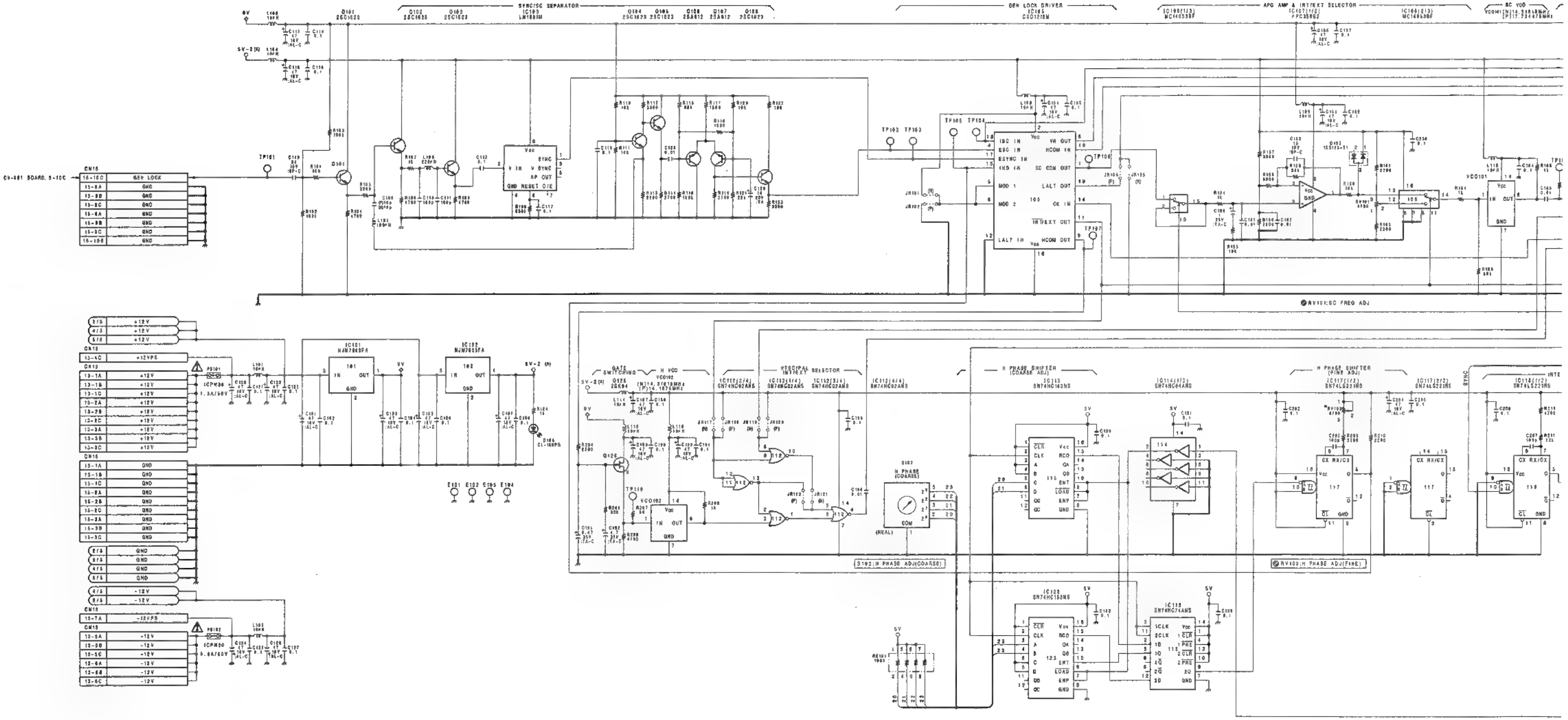


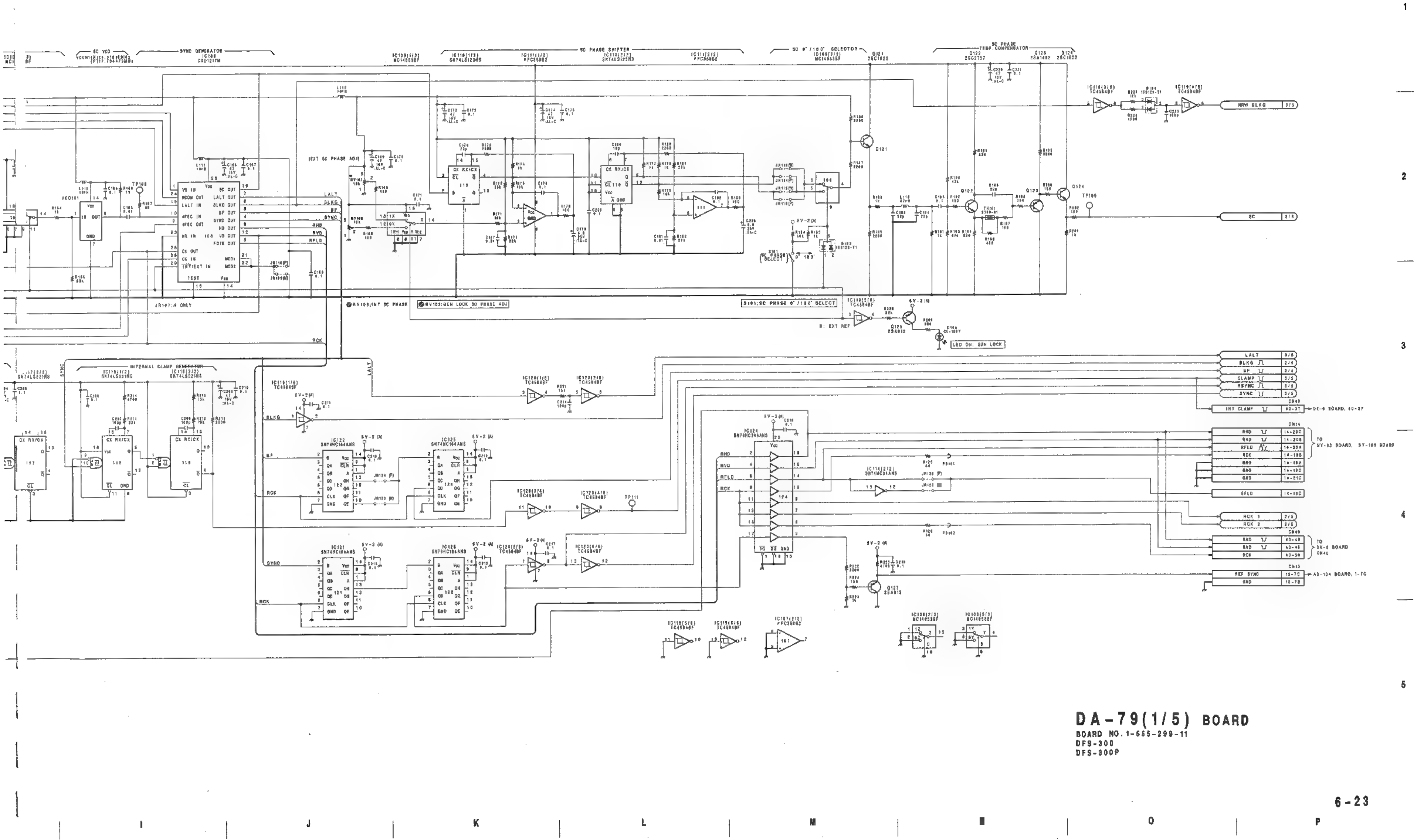
DA-79 -A SIDE-
1-655-299-11
D 300/300P


2
3
4
5
6
7
8
9
10
11
12
13
14
B
C
D
E
F
G
H
J
K

DA-79 -B SIDE-
[illegible]
[illegible]

DA-79(1/5);SYNC Generator

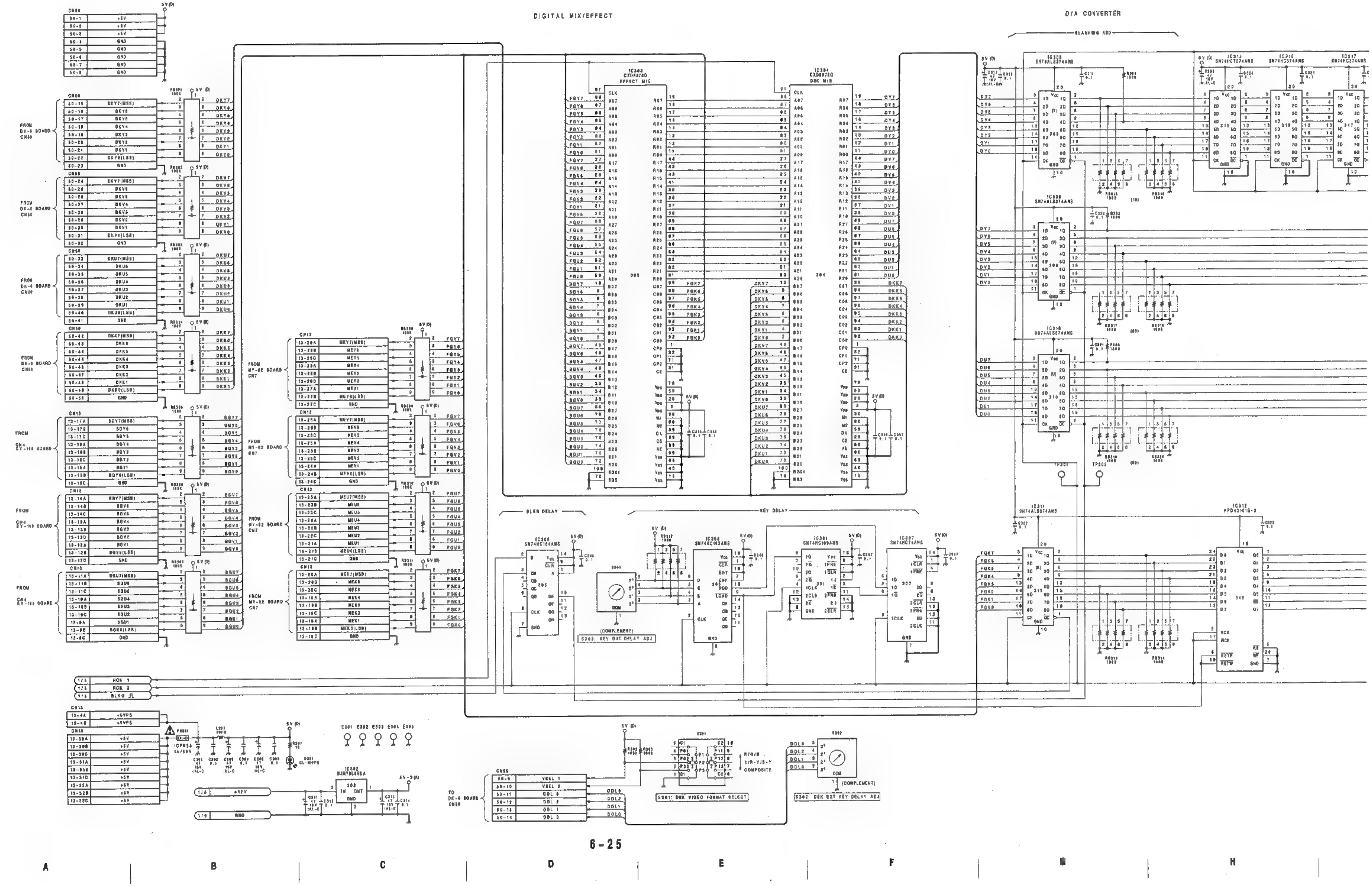

SYNC/SC SEPARATOR
GEN LOCK DRIVER
APC AMP & INT/EXT SELECTOR
SC VCO
GATE SWITCHING
H VCO
H SIGNAL SELECTOR INT/EXT
H PHASE SHIFTER (COARSE ADJ)
H PHASE SHIFTER (FINE ADJ)
IC101 NJM7805FA
IC102 NJM7805FA
IC103 LM1881M
IC105 CXD1213M
IC115 SN74HC163NS
IC114(1/2) SN74HC04ANS
IC117(1/2) SN74LS221NS
IC117(2/2) SN74LS221NS
IC118(1/2) SN74LS221NS
IC123 SN74HC163NS
IC113 SN74HC74ANS
CN-861 BOARD, 5-10C
CN15
CN13
GEN LOCK
GND
+12V
-12V
+12VPS
-12VPS
5V
5V-2(A)
TP101
TP102
TP103
TP104
TP105
TP106
TP107
TP110
RV101:SC FREQ ADJ
S102:H PHASE ADJ(COARSE)
RV103:H PHASE ADJ(FINE)
S102 H PHASE (COARSE)
(REAL)
COM
E101 E102 E103 E104
D105 CL-150PG
PS101 ICP-N38 1.5A/50V
PS102 ICP-N20 0.8A/50V
VCO101
VCO102
SYNC

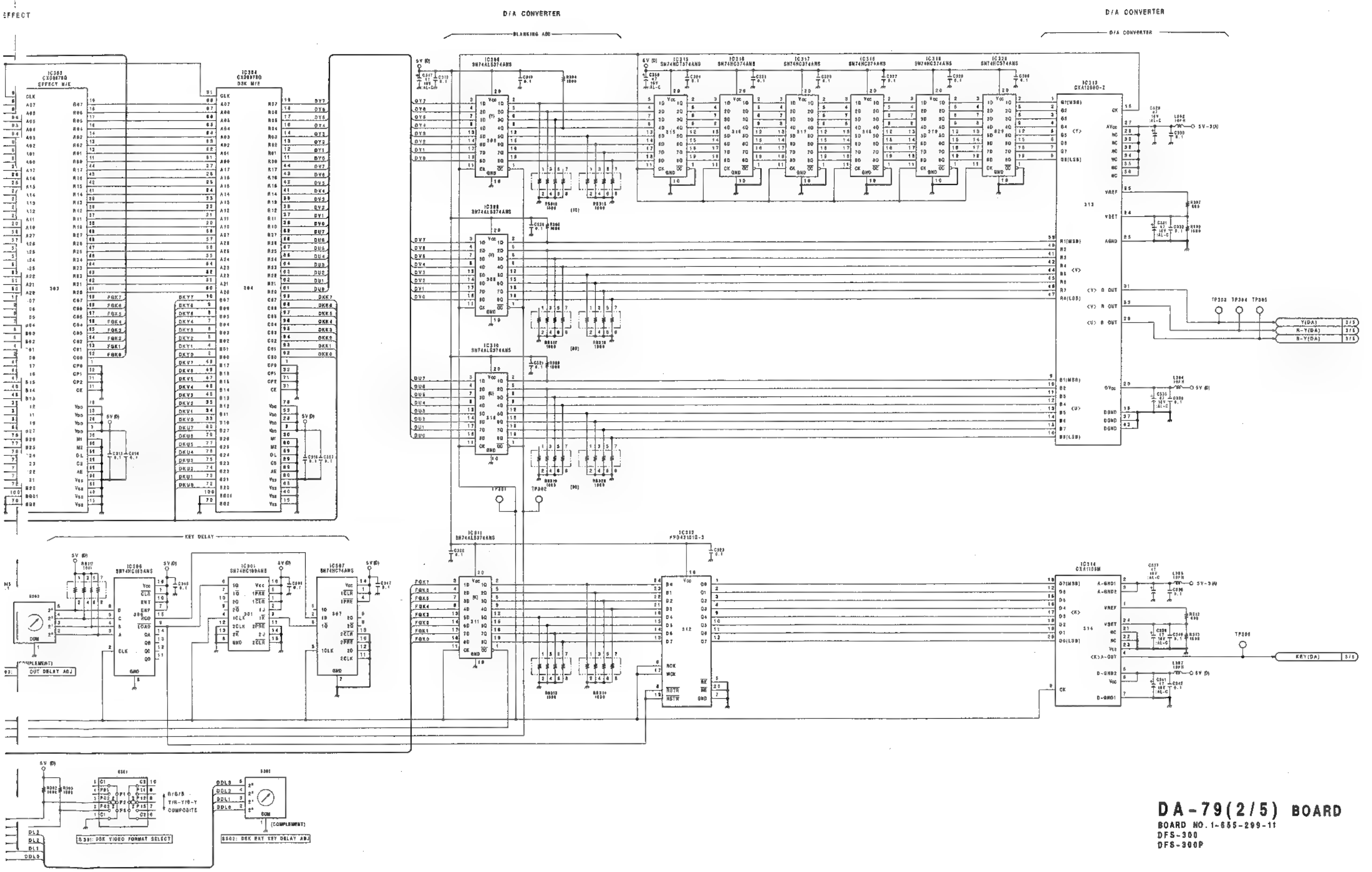

SC VCO
SYNC GENERATOR
IC108 CXD1217M
SC PHASE SHIFTER
SC 0°/180° SELECTOR
SC PHASE TEMP COMPENSATOR
INTERNAL CLAMP GENERATOR
(EXT SC PHASE ADJ)
RV103:INT SC PHASE
RV102:GEN LOCK SC PHASE ADJ
S101:SC PHASE 0°/180° SELECT
LED ON: GEN LOCK
H: EXT REF
JR147:H ONLY
NRW BLKG
SC
LALT
BLKG
BF
CLAMP
RSYNC
SYNC
INT CLAMP
TO DX-8 BOARD, 40-37
RHD
RVD
RFLD
RCK
GND
SFLD
RCK 1
RCK 2
TO SY-82 BOARD, SY-109 BOARD
TO DX-8 BOARD CN40
REF SYNC
TO AD-104 BOARD, 1-7C
IC124 SN74HC244ANS
IC122 SN74HC164ANS
IC125 SN74HC164ANS
IC121 SN74HC164ANS
IC126 SN74HC164ANS
TP108
TP109
TP111
Q121
Q122
Q123
Q124
Q125
Q127
1
2
3
4
5
I
J
K
L
M
N
O
P

DA-79(1/5) BOARD

BOARD NO. 1-655-299-11
DFS-300
DFS-300P

DA-79(2/5);Digital M/E & D/A Converter

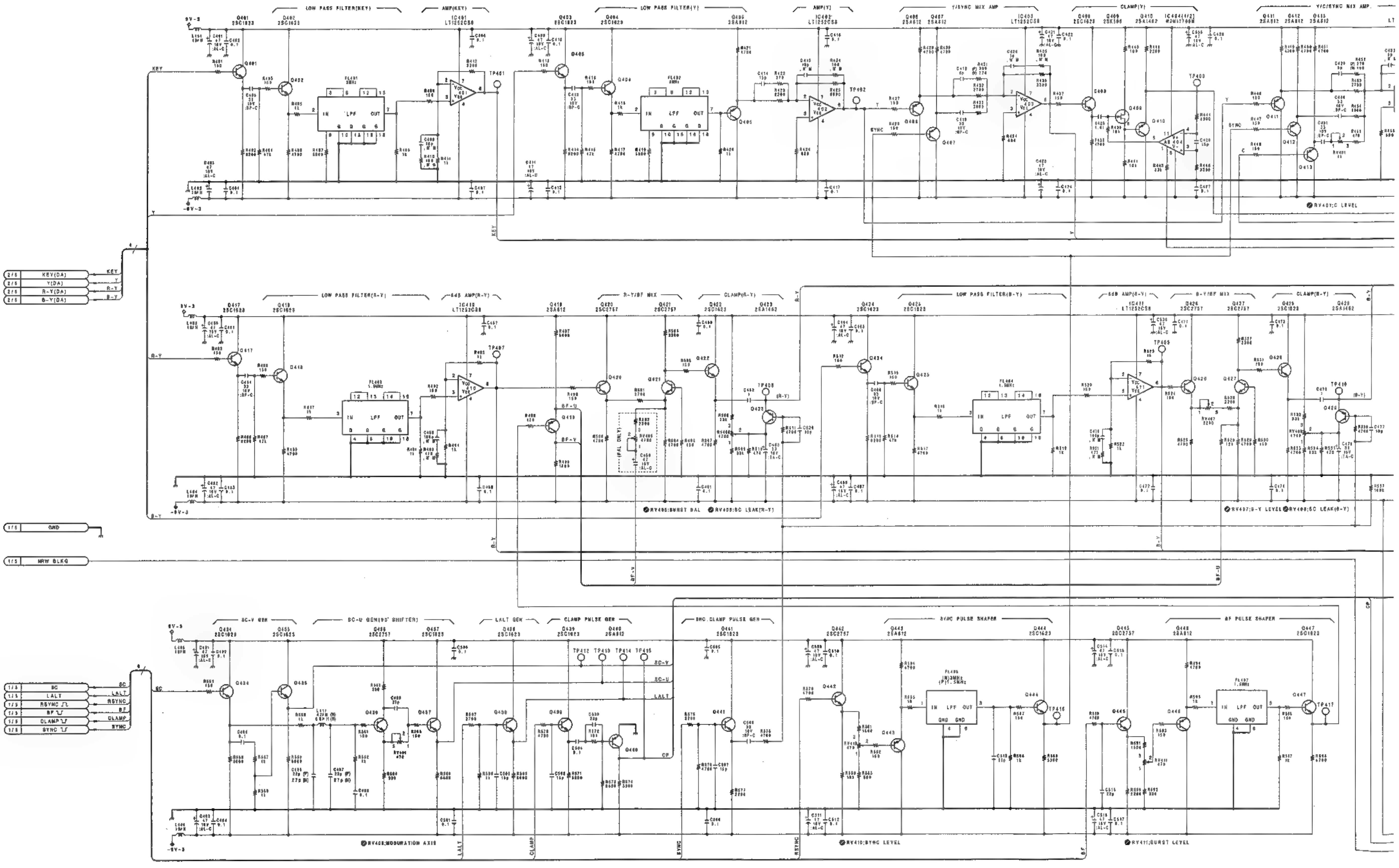

DIGITAL MIX/EFFECT
D/A CONVERTER
BLANKING ADD
IC303 CXD8786Q EFFECT M/E
IC304 CXD8786Q DSK M/E
IC308 SN74ALS374ANS
IC309 SN74ALS374ANS
IC310 SN74ALS374ANS
IC311 SN74ALS374ANS
IC312 μPD42101G-3
IC313 SN74HC374ANS
IC316 SN74HC374ANS
IC317 SN74HC374ANS
BLKG DELAY
KEY DELAY
IC305 SN74HC164ANS
IC306 SN74HC163ANS
IC301 SN74HC109ANS
IC307 SN74HC74ANS
S303: KEY OUT DELAY ADJ
(COMPLEMENT)
S301: DSK VIDEO FORMAT SELECT
R/G/B
Y/R-Y/B-Y
COMPOSITE
S302: DSK EXT KEY DELAY ADJ
IC302 NJM78L05UA
FROM DK-8 BOARD CN50
FROM MY-62 BOARD CN7
FROM CN4 SY-168 BOARD
TO DK-8 BOARD CN50
CN50
CN13
CN15
HCK 1
HCK 2
BLKG
TP301
TP302
A
B
C
D
E
F
G
H

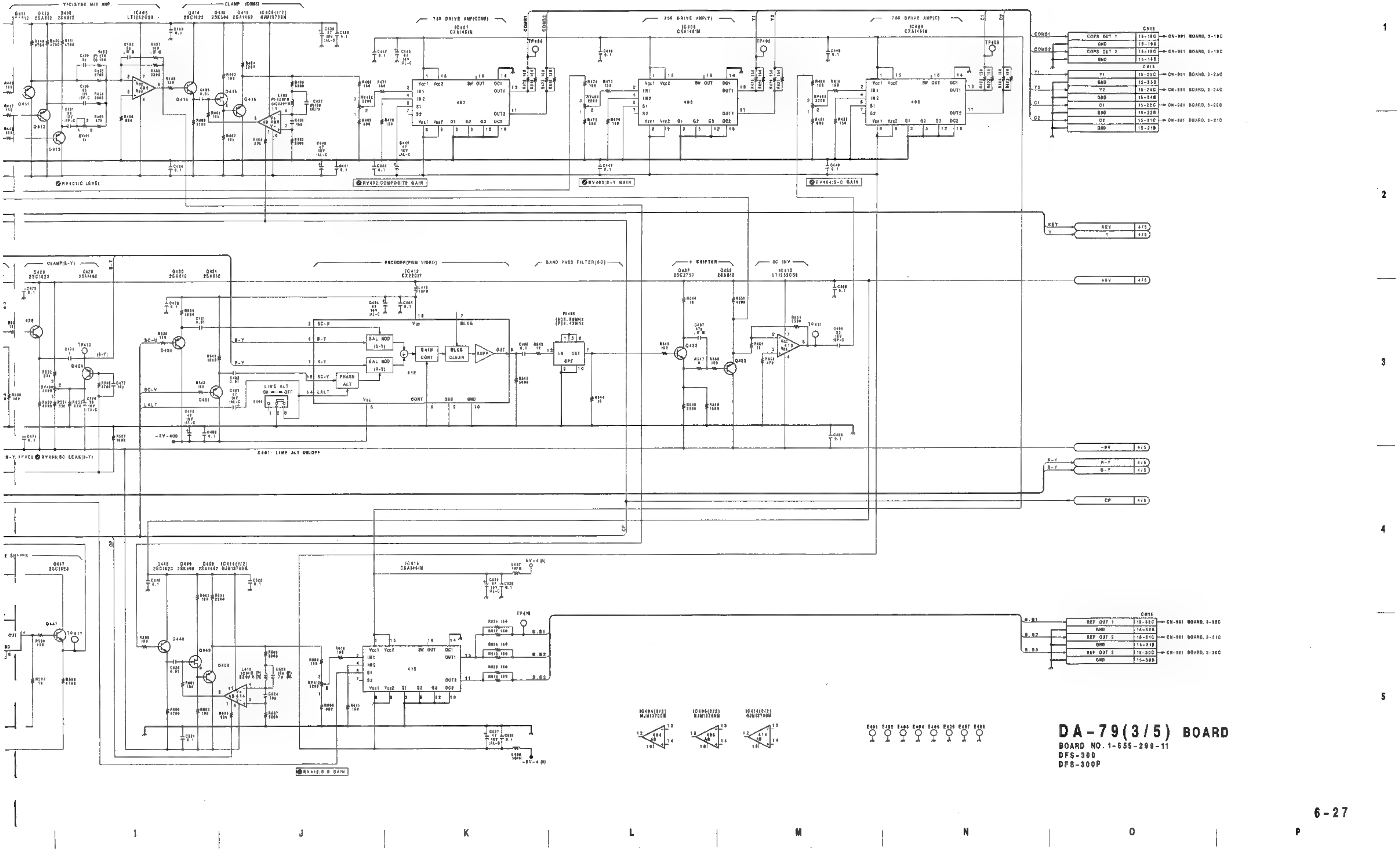

EFFECT
D/A CONVERTER
BLANKING ADD
D/A CONVERTER
D/A CONVERTER
IC303 CXD8678Q EFFECT M/E
IC304 CXD8678Q DSK M/E
IC308 SN74ALS374ANS
IC315 SN74HCT374ANS
IC316 SN74HC374ANS
IC317 SN74HC374ANS
IC318 SN74HC374ANS
IC319 SN74HC374ANS
IC320 SN74HC574ANS
IC313 CXA1266Q-Z
IC309 SN74ALS374ANS
IC310 SN74ALS374ANS
IC311 SN74ALS374ANS
IC312 μPD42101G-3
IC314 CXA1106M
KEY DELAY
IC306 SN74HC163ANS
IC301 SN74HC109ANS
IC307 SN74HC74ANS
5V (D)
5V-3(A)
TP301
TP302
TP303
TP304
TP305
TP306
Y(DA) 2/5
R-Y(DA) 2/5
B-Y(DA) 2/5
KEY(DA) 3/5
<Y> A OUT
<V> A OUT
<U> A OUT
(COMPLEMENT)
OUT DELAY ADJ
R/G/B
Y/R-Y/B-Y
COMPOSITE
S301: DSK VIDEO FORMAT SELECT
S302: DSK EXT KEY DELAY ADJ
1
2
3
4
5
E
F
G
H
I
J
K
L

DA-79(2/5) BOARD

BOARD NO. 1-655-299-11
DFS-300
DFS-300P

DA-79(3/5);Composite & Y/C Process

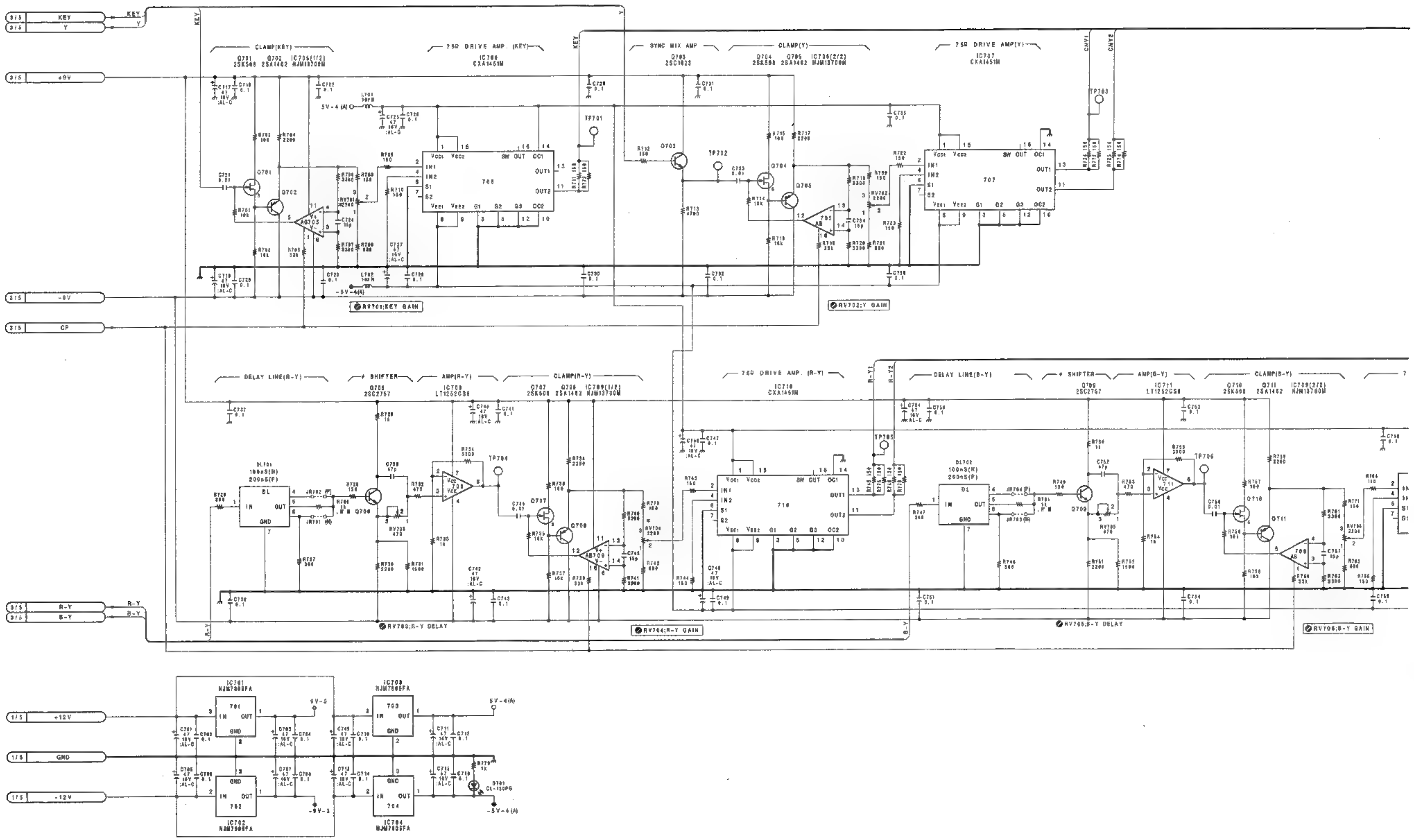

LOW PASS FILTER(KEY)
AMP(KEY)
LOW PASS FILTER(Y)
AMP(Y)
Y/SYNC MIX AMP
CLAMP(Y)
Y/C/SYNC MIX AMP.
LOW PASS FILTER(R-Y)
6dB AMP(R-Y)
R-Y/BF MIX
CLAMP(R-Y)
LOW PASS FILTER(B-Y)
6dB AMP(B-Y)
B-Y/BF MIX
CLAMP(B-Y)
SC-V GEN
SC-U GEN(90° SHIFTER)
LALT GEN
CLAMP PULSE GEN
SYNC CLAMP PULSE GEN
SYNC PULSE SHAPER
BF PULSE SHAPER
2/5 KEY(DA)
2/5 Y(DA)
2/5 R-Y(DA)
2/5 B-Y(DA)
1/5 GND
1/5 MRW BLKG
1/5 SC
1/5 LALT
1/5 RSYNC
1/5 BF
1/5 CLAMP
1/5 SYNC
RV401;C LEVEL
RV405;BURST BAL
RV406;SC LEAK(R-Y)
RV407;B-Y LEVEL
RV408;SC LEAK(B-Y)
RV409;MODULATION AXIS
RV410;SYNC LEVEL
RV411;BURST LEVEL
A
B
C
D
E
F
G
H


Y/C/SYNC MIX AMP.
CLAMP (COMS)
75Ω DRIVE AMP(COMS)
IC407 CXA1461M
75Ω DRIVE AMP(Y)
IC408 CXA1461M
75Ω DRIVE AMP(C)
IC409 CXA1461M
COMS1
COMS2
Y1
Y2
C1
C2
CN15
COPS OUT 1 | 15-19C → CN-961 BOARD, 3-19C
GND | 15-19B
COPS OUT 2 | 15-20C → CN-961 BOARD, 3-19C
GND | 15-14B
Y1 | 15-25C → CN-961 BOARD, 3-25C
GND | 15-25B
Y2 | 15-24C → CN-961 BOARD, 3-24C
GND | 15-24B
C1 | 15-22C → CN-961 BOARD, 3-22C
GND | 15-22B
C2 | 15-21C → CN-961 BOARD, 3-21C
GND | 15-21B
RV401:C LEVEL
RV402:COMPOSITE GAIN
RV403:S-Y GAIN
RV404:S-C GAIN
KEY
Y
KEY 4/5
Y 4/5
CLAMP(B-Y)
ENCODER(PGM VIDEO)
IC412 CXA2037
BAND PASS FILTER(SC)
FL405
φ SHIFTER
SC INV
IC413 LT1252CS8
+5V 4/5
BAL MOD (B-Y)
BAL MOD (R-Y)
GAIN CONT
BLKG CLEAN
BUFF
PHASE ALT
LINE ALT ON OFF
BPF
S401: LINE ALT ON/OFF
B-Y LEVEL
RV408:SC LEAK(B-Y)
-5V 4/5
R-Y
B-Y
R-Y 4/5
B-Y 4/5
CP 4/5
IC415 CXA1461M
RV412:B.B GAIN
B.B1
B.B2
B.B3
REF OUT 1 | 15-32C → CN-961 BOARD, 3-32C
GND | 15-32B
REF OUT 2 | 15-31C → CN-961 BOARD, 3-31C
GND | 15-31B
REF OUT 3 | 15-30C → CN-961 BOARD, 3-30C
GND | 15-30B
IC406(2/2) NJM13700M
IC405(2/2) NJM13700M
IC414(2/2) NJM13700M
E401 E402 E403 E404 E405 E406 E407 E408
1
2
3
4
5
I
J
K
L
M
N
O
P

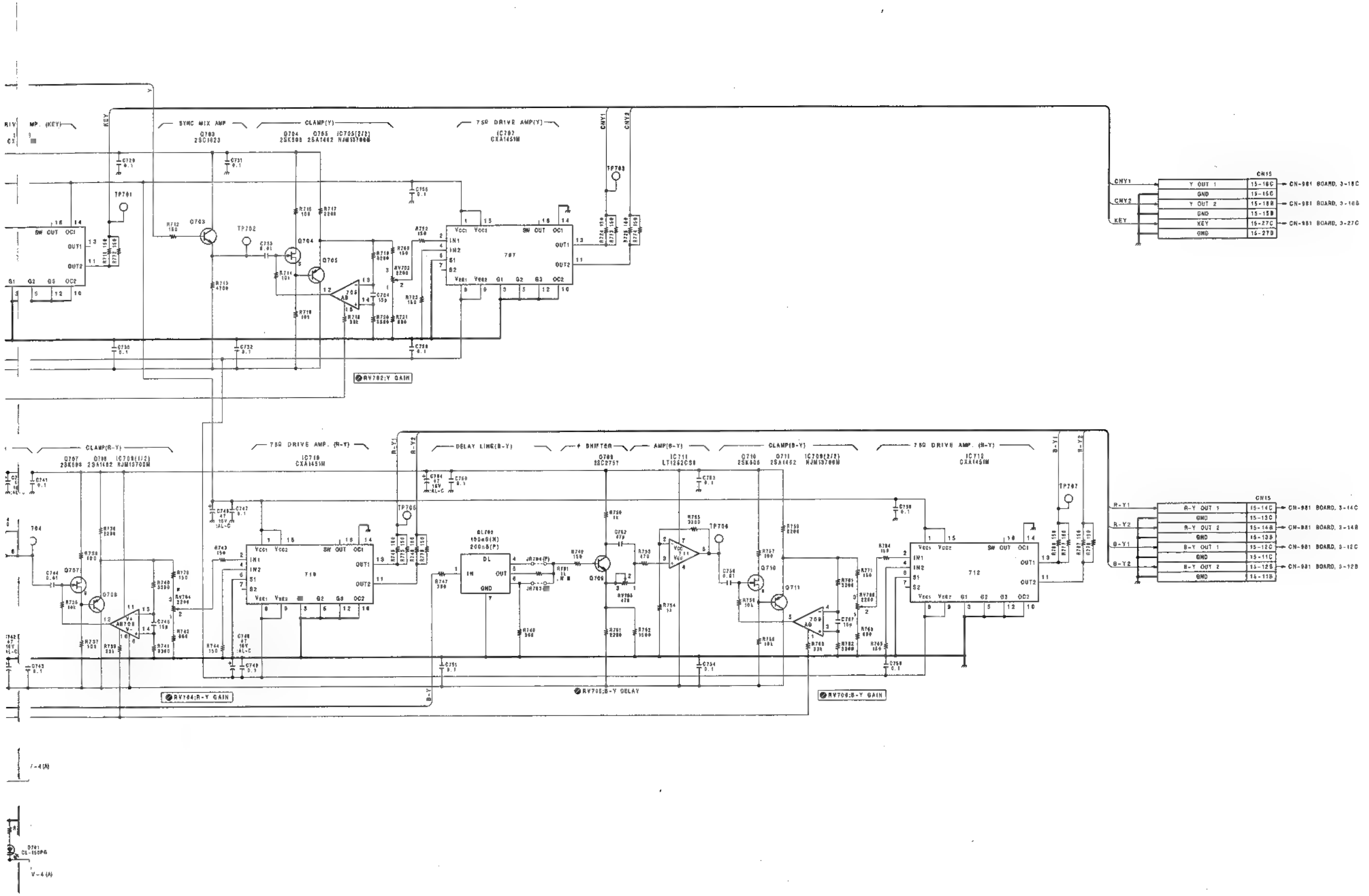
DA-79(3/5) BOARD

BOARD NO. 1-655-299-11
DFS-300
DFS-300P

DA-79(4/5);Component Process



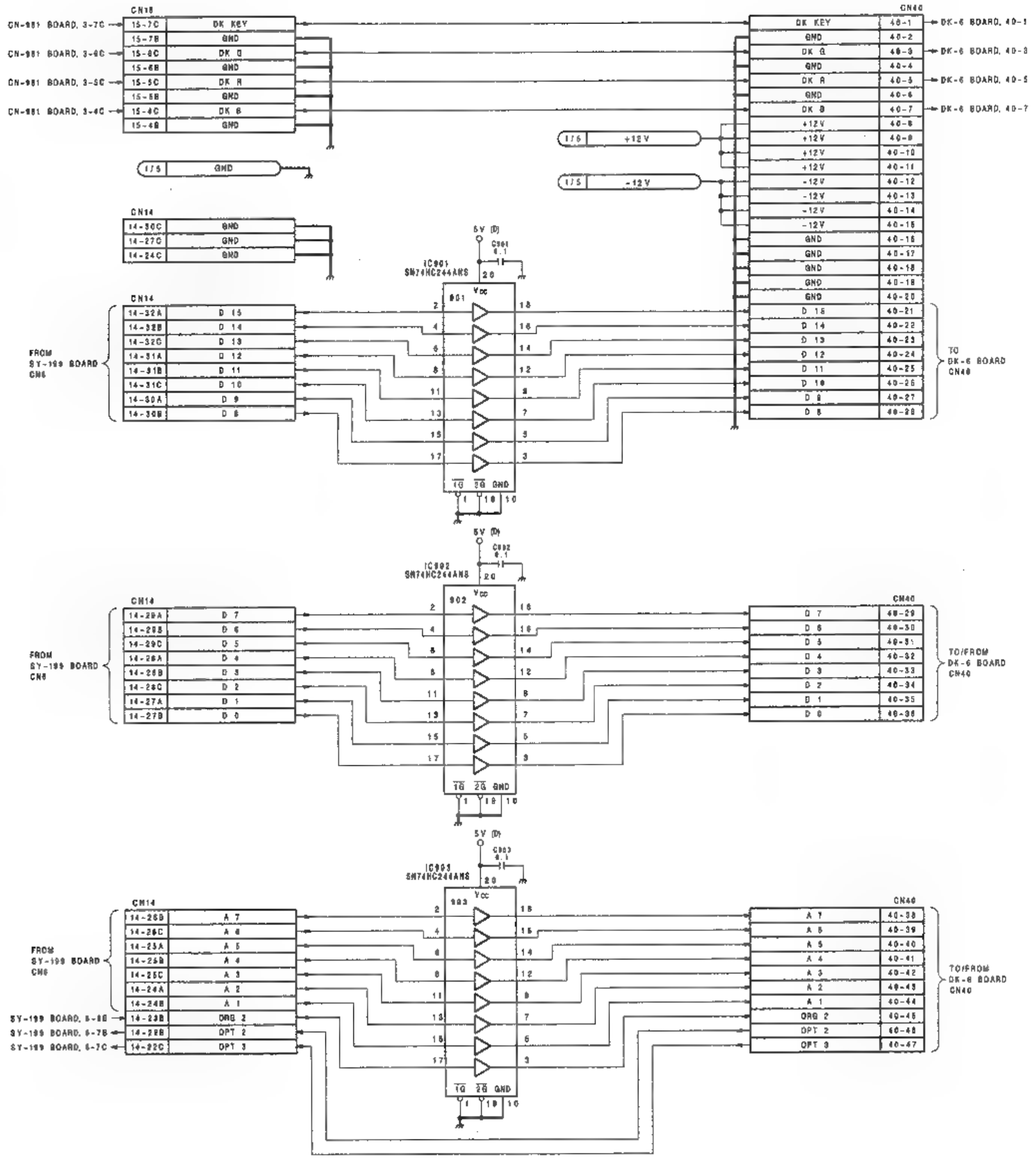
3/5 KEY
3/5 Y
3/5 +9V
3/5 -9V
3/5 CP
3/5 R-Y
3/5 B-Y
1/5 +12V
1/5 GND
1/5 -12V
CLAMP(KEY)
Q701 2SK508
Q702 2SA1462
IC706(1/2) NJM13700M
75Ω DRIVE AMP.(KEY)
IC706 CXA1451M
SYNC MIX AMP
Q703 2SC1623
CLAMP(Y)
Q704 2SK508
Q705 2SA1462
IC705(2/2) NJM13700M
75Ω DRIVE AMP(Y)
IC707 CXA1451M
TP701
TP702
TP703
TP704
TP705
TP706
RV701;KEY GAIN
RV702;Y GAIN
DELAY LINE(R-Y)
φ SHIFTER
Q706 2SC2757
AMP(R-Y)
IC708 LT1252CS8
CLAMP(R-Y)
Q707 2SK508
Q708 2SA1462
IC709(1/2) NJM13700M
75Ω DRIVE AMP.(R-Y)
IC710 CXA1451M
DELAY LINE(B-Y)
φ SHIFTER
Q709 2SC2757
AMP(B-Y)
IC711 LT1252CS8
CLAMP(B-Y)
Q710 2SK508
Q711 2SA1462
IC709(2/2) NJM13700M
DL701 100nS(N) 200nS(P)
DL702 100nS(N) 200nS(P)
RV703;R-Y DELAY
RV704;R-Y GAIN
RV705;B-Y DELAY
RV706;B-Y GAIN
IC701 NJM7809FA
IC702 NJM7909FA
IC703 NJM7805FA
IC704 NJM7905FA
9V-3
-9V-3
5V-4(A)
-5V-4(A)
D701 CL-150PG


MP. (KEY)
SYNC MIX AMP
Q703
2SC1623
CLAMP(Y)
Q704 2SK508
Q705 2SA1462
IC705(2/2) NJM13700M
75Ω DRIVE AMP(Y)
IC707
CXA1451M
KEY
Y
CNY1
CNY2
TP701
TP702
TP703
RV702:Y GAIN
CLAMP(R-Y)
Q707 2SK508
Q708 2SA1462
IC709(1/2) NJM13700M
75Ω DRIVE AMP. (R-Y)
IC710
CXA1451M
R-Y1
R-Y2
DELAY LINE(B-Y)
DL702
100nS(N)
200nS(P)
φ SHIFTER
Q709
2SC2757
AMP(B-Y)
IC711
LT1252CS8
CLAMP(B-Y)
Q710 2SK508
Q711 2SA1462
IC709(2/2) NJM13700M
75Ω DRIVE AMP. (B-Y)
IC712
CXA1451M
B-Y1
B-Y2
TP705
TP706
TP707
RV704:R-Y GAIN
RV705:B-Y DELAY
RV706:B-Y GAIN
CN15
CNY1
CNY2
KEY
Y OUT 1
GND
Y OUT 2
GND
KEY
GND
15-16C
15-15C
15-16B
15-15B
15-27C
15-27B
CN-981 BOARD, 3-16C
CN-981 BOARD, 3-16B
CN-981 BOARD, 3-27C
R-Y1
R-Y2
B-Y1
B-Y2
R-Y OUT 1
GND
R-Y OUT 2
GND
B-Y OUT 1
GND
B-Y OUT 2
GND
15-14C
15-13C
15-14B
15-13B
15-12C
15-11C
15-12B
15-11B
CN-981 BOARD, 3-14C
CN-981 BOARD, 3-14B
CN-981 BOARD, 3-12C
CN-981 BOARD, 3-12B
V-4(A)
D701
CL-150PG
1
2
3
4
5
E
F
G
H
I
J
K
L

DA-79(4/5) BOARD

BOARD NO.1-655-299-11
DFS-300
DFS-300P

DA-79(5/5);DK Board Buffer

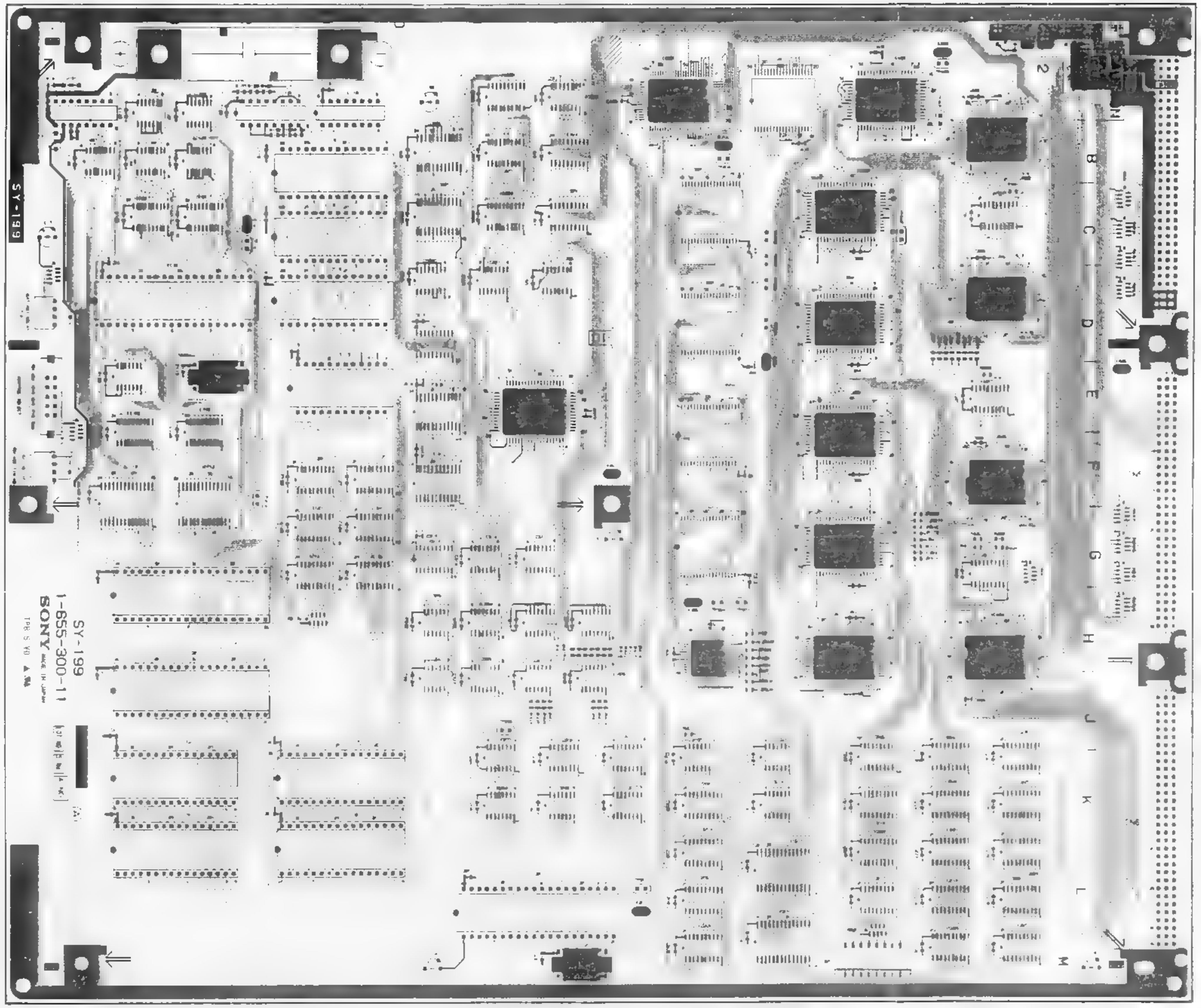

CN15
CN-981 BOARD, 3-7C
CN-981 BOARD, 3-6C
CN-981 BOARD, 3-5C
CN-981 BOARD, 3-4C
15-7C DK KEY
15-7B GND
15-6C DK G
15-6B GND
15-5C DK R
15-5B GND
15-4C DK B
15-4B GND
1/5 GND
CN14
14-30C GND
14-27C GND
14-24C GND
1/5 +12V
1/5 -12V
CN40
DK KEY 40-1
GND 40-2
DK G 40-3
GND 40-4
DK R 40-5
GND 40-6
DK B 40-7
+12V 40-8
+12V 40-9
+12V 40-10
+12V 40-11
-12V 40-12
-12V 40-13
-12V 40-14
-12V 40-15
GND 40-16
GND 40-17
GND 40-18
GND 40-19
GND 40-20
DK-6 BOARD, 40-1
DK-6 BOARD, 40-3
DK-6 BOARD, 40-5
DK-6 BOARD, 40-7
5V (D)
C901 0.1
IC901 SN74HC244ANS
Vcc
901
1G 2G GND
FROM SY-199 BOARD CN6
14-32A D 15
14-32B D 14
14-32C D 13
14-31A D 12
14-31B D 11
14-31C D 10
14-30A D 9
14-30B D 8
D 15 40-21
D 14 40-22
D 13 40-23
D 12 40-24
D 11 40-25
D 10 40-26
D 9 40-27
D 8 40-28
TO DK-6 BOARD CN40
5V (D)
C902 0.1
IC902 SN74HC244ANS
902
14-29A D 7
14-29B D 6
14-29C D 5
14-28A D 4
14-28B D 3
14-28C D 2
14-27A D 1
14-27B D 0
D 7 40-29
D 6 40-30
D 5 40-31
D 4 40-32
D 3 40-33
D 2 40-34
D 1 40-35
D 0 40-36
TO/FROM DK-6 BOARD CN40
5V (D)
C903 0.1
IC903 SN74HC244ANS
903
14-26B A 7
14-26C A 6
14-25A A 5
14-25B A 4
14-25C A 3
14-24A A 2
14-24B A 1
14-23B ORG 2
14-22B OPT 2
14-22C OPT 3
SY-199 BOARD, 6-8B
SY-199 BOARD, 6-7B
SY-199 BOARD, 6-7C
A 7 40-38
A 6 40-39
A 5 40-40
A 4 40-41
A 3 40-42
A 2 40-43
A 1 40-44
ORG 2 40-45
OPT 2 40-46
OPT 3 40-47
TO/FROM DK-6 BOARD CN40

DA-79(5/5) BOARD
BOARD NO.1-655-299-11
DFS-300
DFS-300P

SY-199 (1-655-300-11)

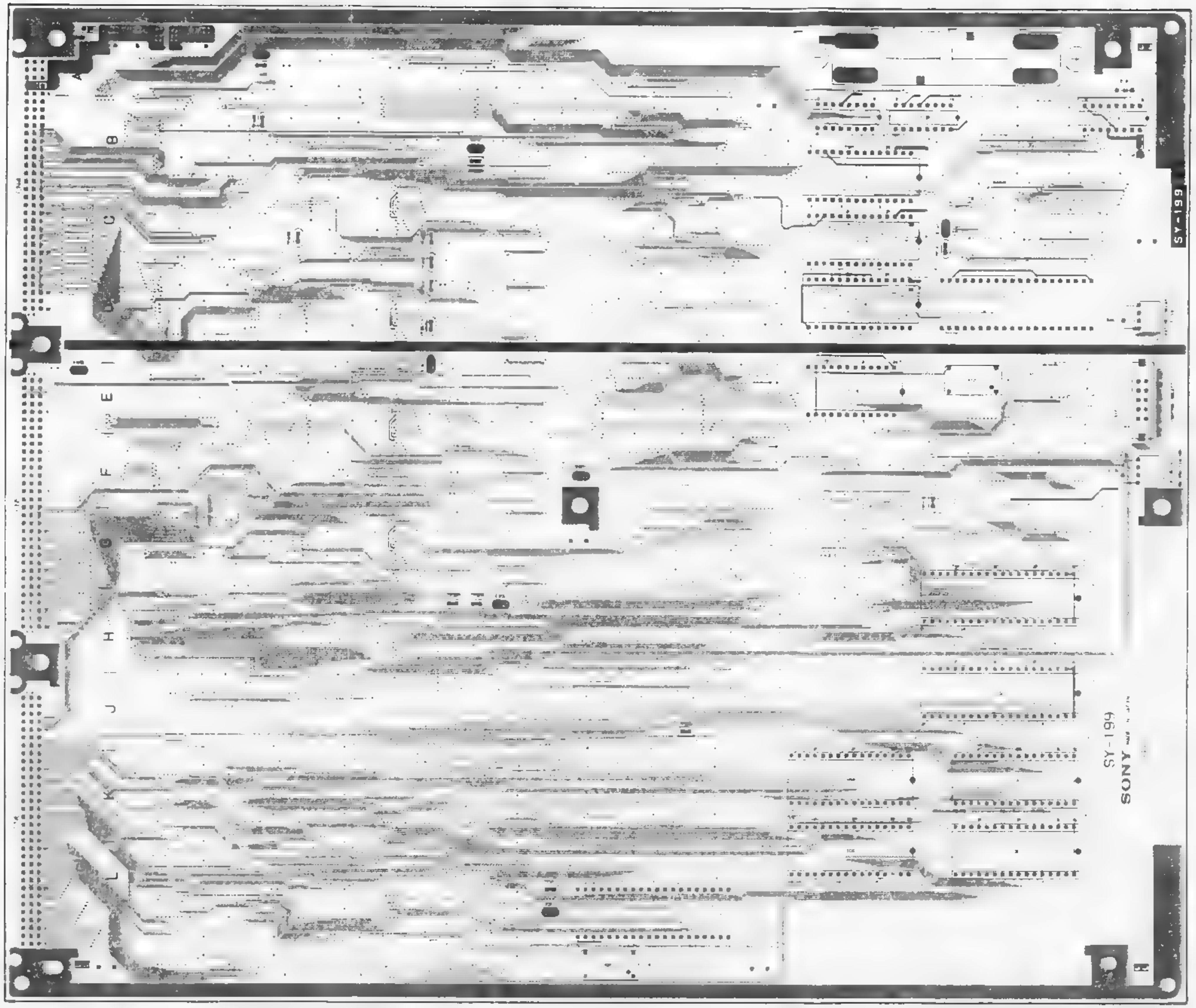
BT1	A-12
CN11	A-13
CN12	J-13
CN13	K-13
CN14	K-11
CN15	L-13
CN16	L-11
CN4	C-1
CN5	F-1
CN6	K-1
D101	A-14
E101	C-12
E201	L-7
E202	M-6
E203	A-3
E301	E-5
E302	H-6
E401	F-7
E402	E-1
C1	H-13
C2	L-13
C3	K-13
C4	K-11
C101	C-13
C102	E-13
C103	E-13
C104	B-13
C105	C-13
C106	C-13
C107	B-13
C108	B-14
C109	B-13
C112	F-13
C113	F-14
C114	B-14
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
C118	B-11
C119	B-11
C120	B-12
C121	G-11
C122	G-10
C123	G-11
C124	G-10
C125	F-14
C126	F-11
C127	F-10
C128	B-13
C201	L-8
C202	L-8
C203	L-6
C204	K-9
C205	M-6
C206	K-6
C207	K-9
C208	K-8
C209	K-8
C210	K-7
C211	K-7
C212	K-6
C213	K-5
C214	K-5
C215	L-5
C216	M-5
C217	L-4
C218	L-3
C219	K-4
C220	L-4
C221	K-3
C222	K-4
C223	L-3
C224	K-3
C225	K-2
C226	M-3
C227	M-2
C228	L-2
C229	L-2
C230	K-2
C301	C-3
C302	D-3
C303	C-4
C304	D-4
C305	C-6
C306	C-6
C307	E-3
C308	F-3
C309	F-4
C310	G-4
C311	F-6
C312	G-6
C313	G-5
C314	G-5
C315	C-12
C316	G-12
C317	E-4
C318	E-12
C319	F-12
C320	D-12
C321	C-9
C322	C-8
C323	C-8
C324	E-8
C325	C-12
C326	B-12
C327	E-9
C328	C-9
C329	E-8
C330	E-5
C331	[illegible]
C332	[illegible]
C333	L-7
C334	H-5
C401	G-3
C402	H-6
C403	H-4
C404	H-3
C405	B-7
C406	E-4
C407	E-5
C408	E-7
C409	L-8
C410	L-8
C411	H-8
C412	H-8
PS1	A-2
Q101	B-14
RB101	E-14
RB102	H-11
RB201	L-4
RB301	C-1
RB302	D-1
RB303	C-1
RB304	C-1
RB305	G-1
RB306	H-1
RB307	G-1
RB308	G-1
RB401	G-2
RB402	D-14
S101	E-14
S102	F-14
S201	M-4
S401	D-14
X101	E-12
X201	M-8

SY-199; System Control



SY-199 -A SIDE-

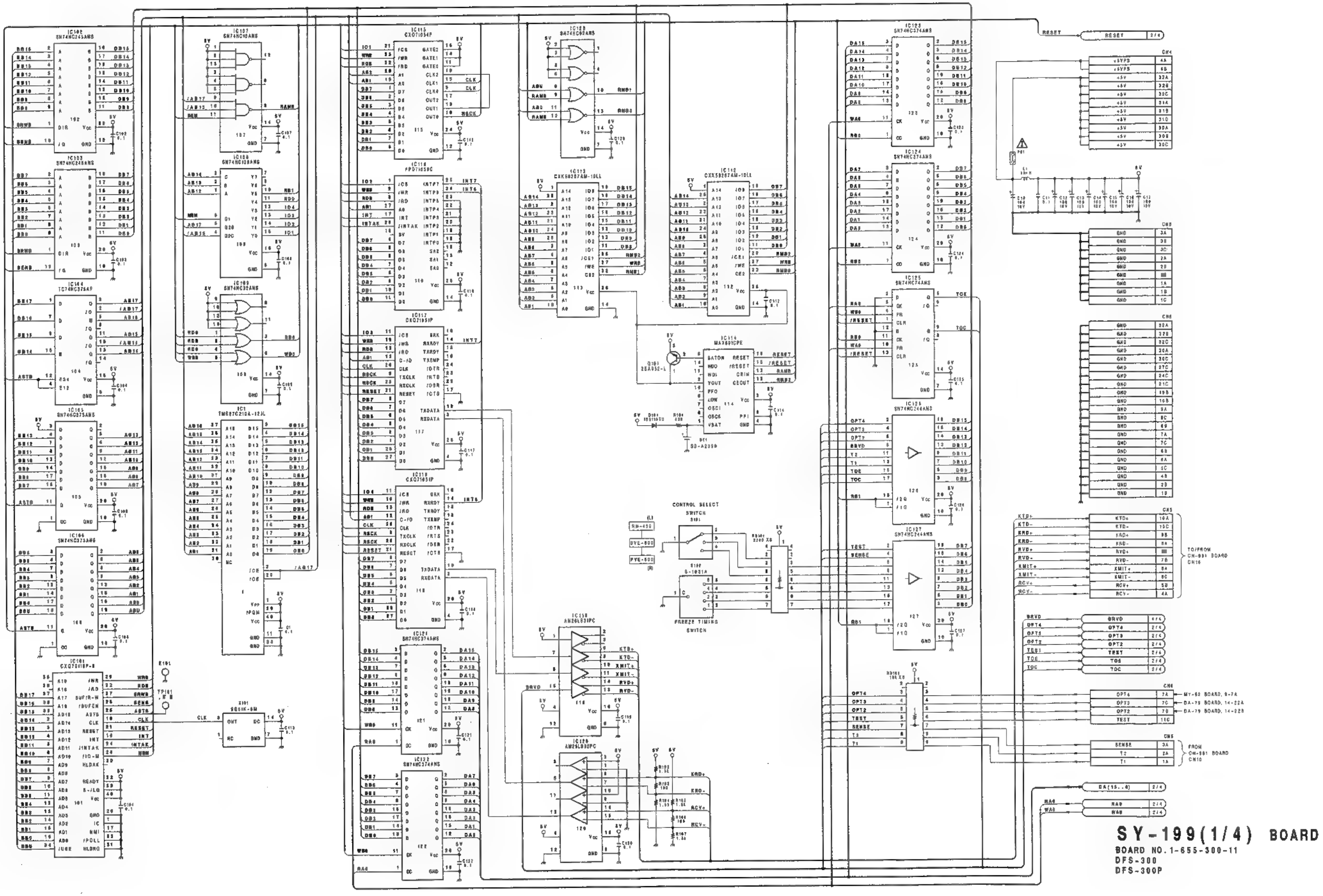
CFS


A
B
C
D
E
F
G
H
J
K
L
SY-199
SY-199
SONY

SY-199 -B SIDE-

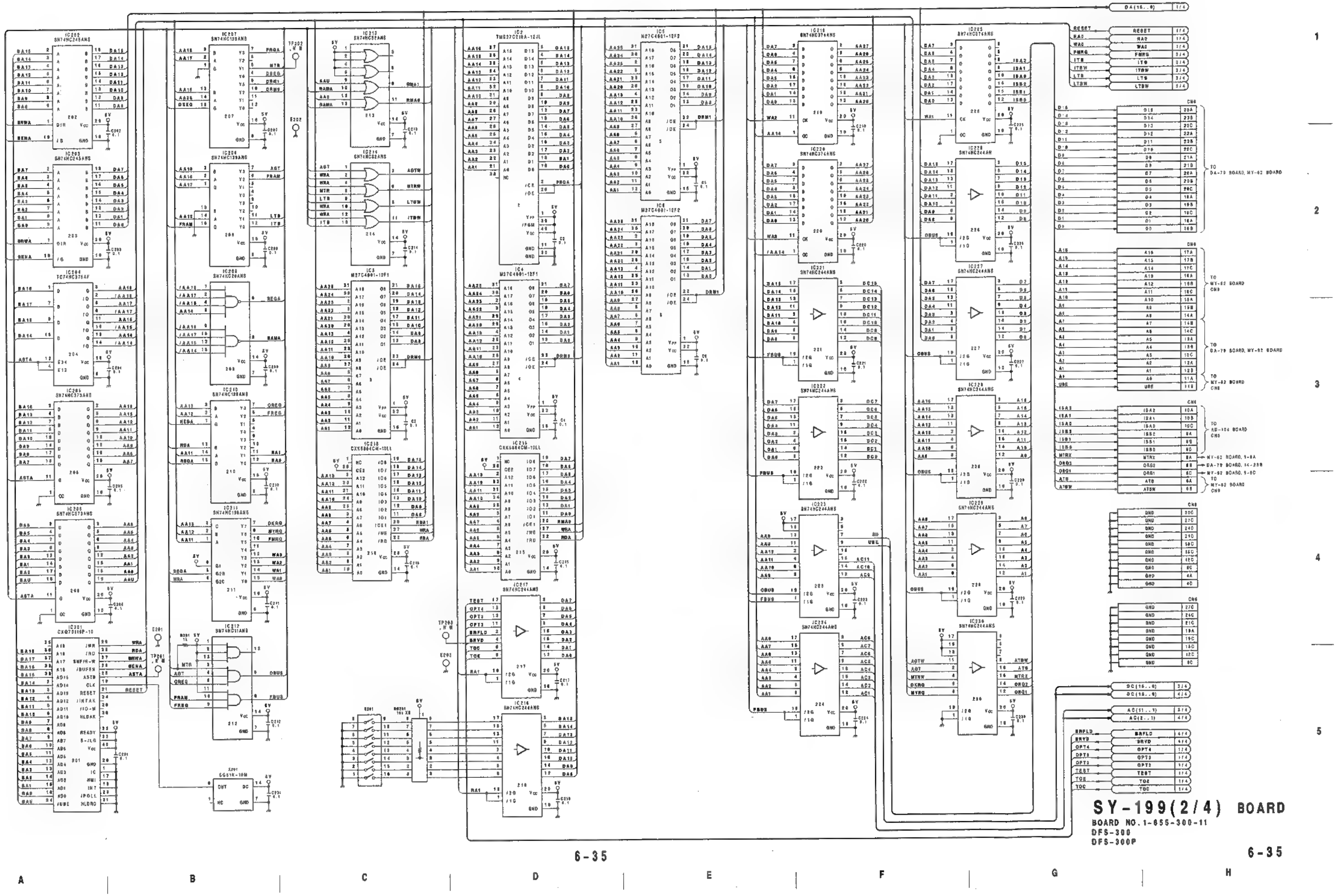
1-655-300-11
DFS-300/300P

SY-199(1/4);Main CPU


IC102 SN74HC245ANS
IC103 SN74HC245ANS
IC104 TC74HC374AF
IC105 SN74HC373ANS
IC106 SN74HC373ANS
IC101 CXQ70116P-8
IC107 SN74HC10ANS
IC108 SN74HC138ANS
IC109 SN74HC32ANS
IC1 TMS27C210A-12JL
IC115 CXQ71054P
IC116 UPD71059C
IC117 CXQ71051P
IC118 CXQ71051P
IC121 SN74HC374ANS
IC122 SN74HC374ANS
IC128 SN74HC32ANS
IC113 CXK58257AM-10LL
IC112 CXK58257AM-10LL
IC114 MAX691CPE
Q101 2SA952-L
IC119 AM26LS31PC
IC120 AM26LS32PC
IC123 SN74HC374ANS
IC124 SN74HC374ANS
IC125 SN74HC74ANS
IC126 SN74HC244ANS
IC127 SN74HC244ANS
X101 9C01K-6M
CONTROL SELECT SWITCH S101
RM-450
BVE-600
PVE-600
S102 S-1031A
FREEZE TIMING SWITCH
RESET 2/4
CN4
CN3
CN6
CN5
TO/FROM CM-991 BOARD CN10
CN8
MY-62 BOARD, 8-7A
BA-79 BOARD, 14-22A
BA-79 BOARD, 14-22B
CN9
FROM CM-991 BOARD CN10
DA(15..0) 2/4
RA6 2/4
WA6 2/4
1
2
3
4
5
A
B
C
D
E
F
G
H

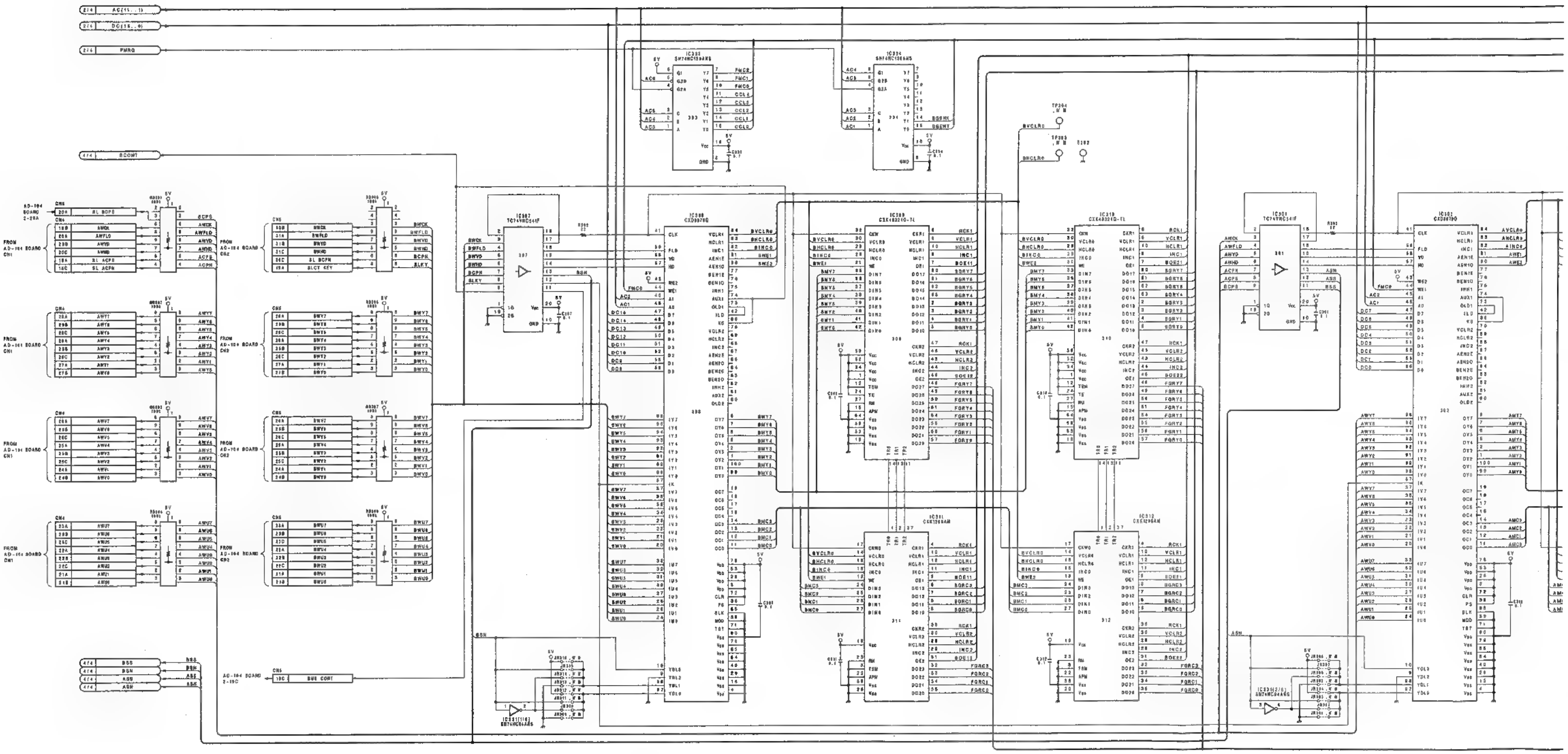
SY-199(1/4) BOARD
BOARD NO.1-655-300-11
DFS-300
DFS-300P

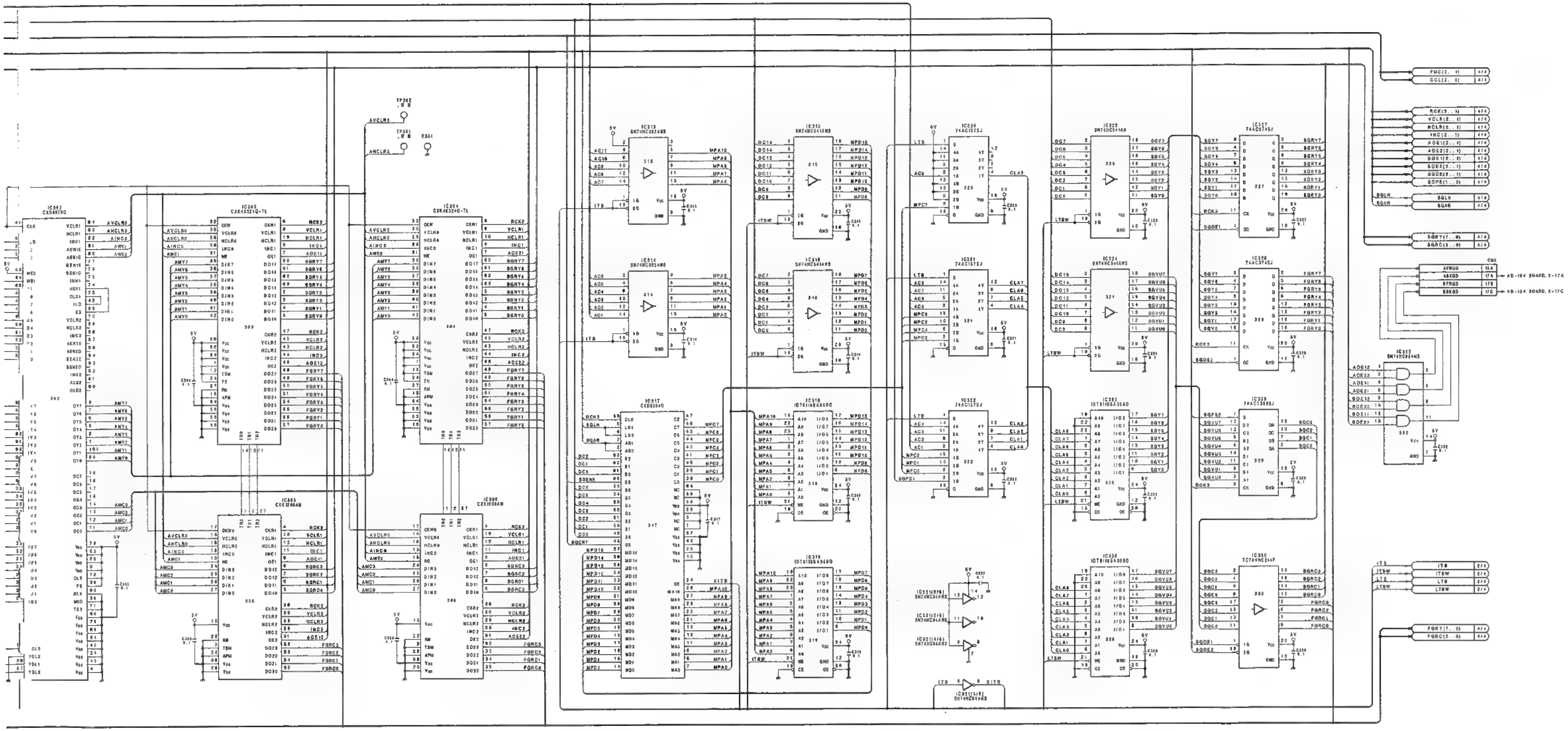
SY-199(2/4);Effect CPU


IC202 SN74HC245ANS
IC203 SN74HC245ANS
IC204 TC74HC375AF
IC205 SN74HC373ANS
IC206 SN74HC373ANS
IC201 CXQ70116P-10
IC207 SN74HC138ANS
IC208 SN74HC138ANS
IC209 SN74HC20ANS
IC210 SN74HC138ANS
IC211 SN74HC138ANS
IC212 SN74HC11ANS
IC213 SN74HC32ANS
IC214 SN74HC32ANS
IC3 M27C4001-12F1
IC218 CXK5864CM-10LL
IC2 TMS27C210A-12JL
IC4 M27C4001-12F1
IC215 CXK5864CM-10LL
IC217 SN74HC244ANS
IC216 SN74HC244ANS
IC5 M27C4001-12F2
IC6 M27C4001-12F2
IC219 SN74HC374ANS
IC220 SN74HC374ANS
IC221 SN74HC244ANS
IC222 SN74HC244ANS
IC223 SN74HC244ANS
IC224 SN74HC244ANS
IC225 SN74HC374ANS
IC226 SN74HC244AN
IC227 SN74HC244ANS
IC228 SN74HC244ANS
IC229 SN74HC244ANS
IC230 SN74HC244ANS
X201 SG51K-10M
TP202
TP203
TP201
E201
E202
E203
DA(15..0) 1/4
RESET 1/4
DC(15..0) 2/4
AC(11..1) 2/4
TO DA-79 BOARD, MY-62 BOARD
TO MY-62 BOARD CN9
TO AD-104 BOARD CN5
CN6
CN8
A
B
C
D
E
F
G
H
1
2
3
4
5

SY-199(2/4) BOARD
BOARD NO. 1-655-300-11
DFS-300
DFS-300P

SY-199(3/4);Frame Synchronizer

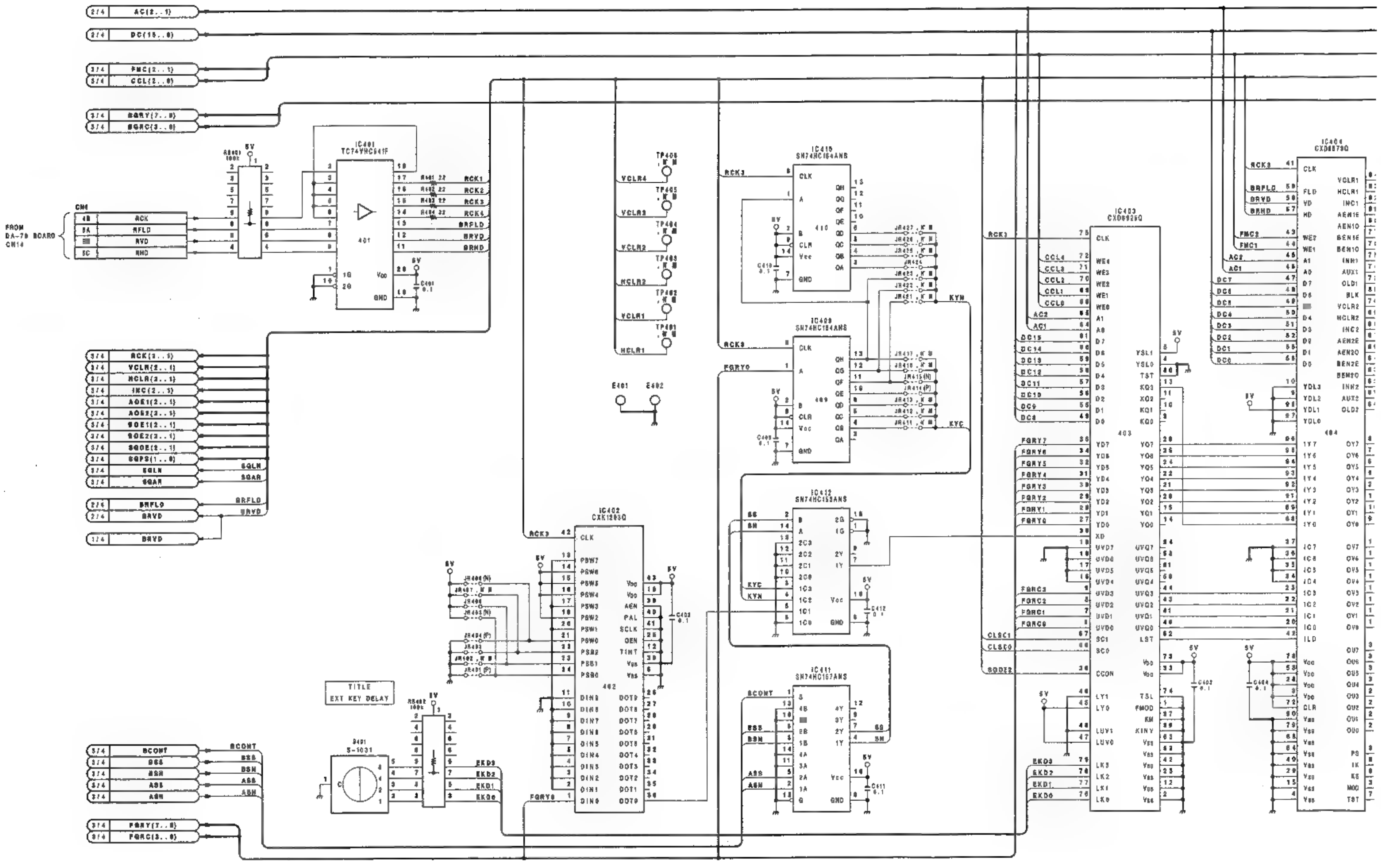


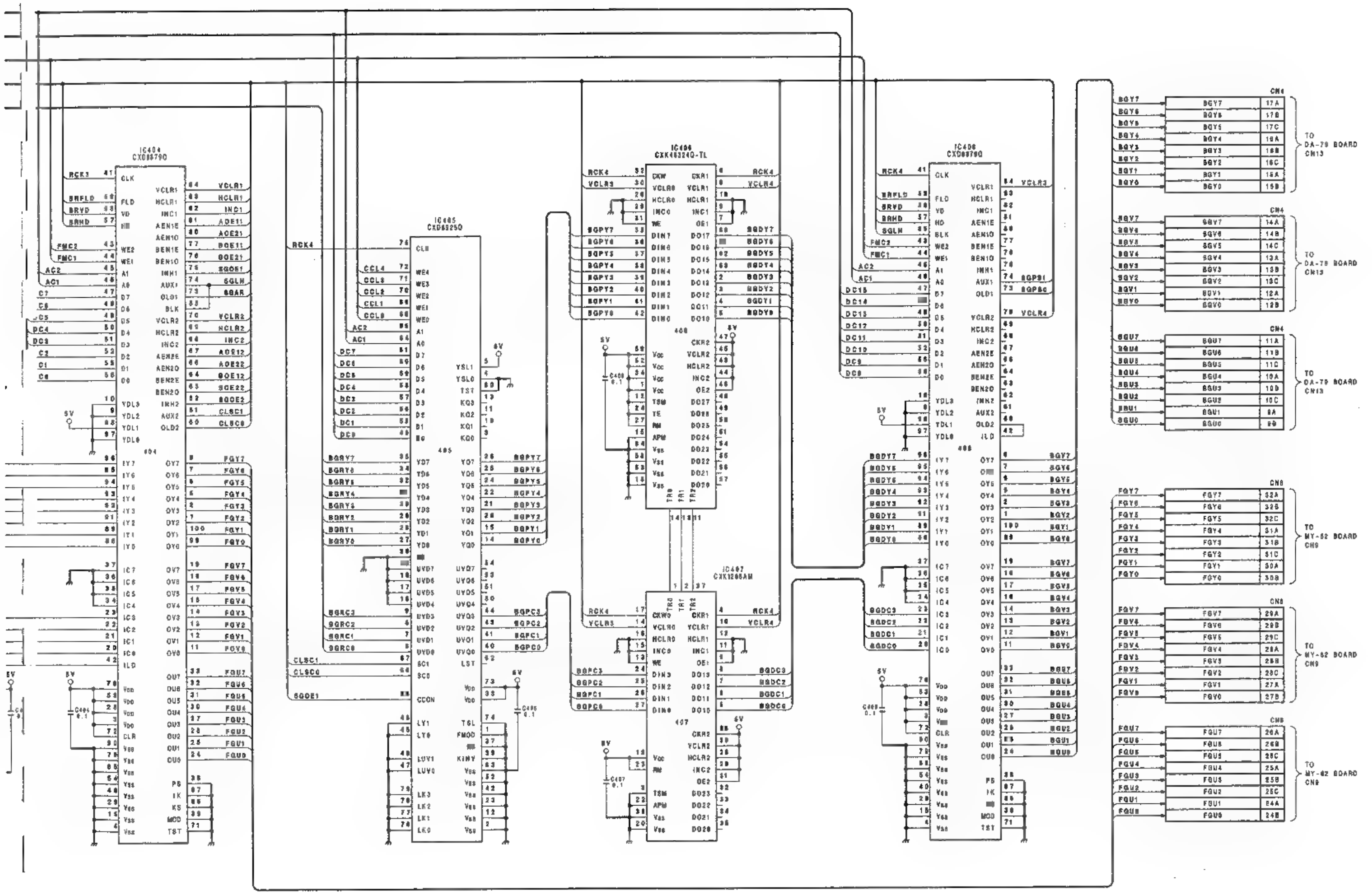

IC302 CXD8073Q
IC303 CXK483221Q-TL
IC304 CXK483240-TL
IC305 CXK1206AM
IC306 CXK1206AM
IC313 SN74HC365ANS
IC314 SN74HC365ANS
IC315 SN74HC541ANS
IC316 SN74HC541ANS
IC317 CXD8286Q
IC318 IDT6116SA35SO
IC319 IDT6116SA35SO
IC320 74AC157SJ
IC321 74AC157SJ
IC322 74AC157SJ
IC323 SN74HC541AN
IC324 SN74HC541ANS
IC325 IDT6116SA35SO
IC326 IDT6116SA35SO
IC327 74AC374SJ
IC328 74AC374SJ
IC330 TC74VHC244F
IC331 SN74HC04ANS
IC332 SN74HC08ANS
TP302
TP301
E301
CN5
AB-184 BOARD, 2-17A
AB-184 BOARD, 2-17C
1
2
3
4
5
I
J
K
L
M
N
O
P

SY-199(3/4) BOARD

BOARD NO. 1-655-300-11
DFS-300
DFS-300P

SY-199(4/4);Color Corrector


AC(2..1)
DC(15..0)
FMC(2..1)
CCL(2..0)
BGRY(7..0)
BGRC(3..0)
FROM DA-79 BOARD CN14
CN4
RCK
RFLD
RVD
RHD
IC401 TC74VHC541F
RCK1
RCK2
RCK3
RCK4
BRFLD
BRVD
BRHD
RCK(3..1)
VCLR(2..1)
HCLR(2..1)
INC(2..1)
AOE1(2..1)
AOE2(2..1)
BOE1(2..1)
BOE2(2..1)
BGOE(2..1)
BGPS(1..0)
SGLN
SGAR
BRFLD
BRVD
BCONT
BSS
BSN
ASS
ASN
FGRY(7..0)
FGRC(3..0)
TP406
TP405
TP404
TP403
TP402
TP401
E401
E402
IC410 SN74HC164ANS
IC409 SN74HC164ANS
IC412 SN74HC153ANS
IC411 SN74HC157ANS
IC402 CXK1203Q
IC403 CXD8925Q
IC404 CXD8879Q
KYN
KYC
TITLE
EXT KEY DELAY
S401 S-1031
EKD3
EKD2
EKD1
EKD0
CLSC1
CLSC0
SGDE2
5V


IC404
CXD8579Q
IC405
CXD8325Q
IC406
CXK48324Q-TL
IC407
CXK1206AM
IC408
CXD8579Q
CN4
TO
DA-79 BOARD
CN13
CN8
TO
MY-62 BOARD
CN9
5V
1
2
3
4
5
I
J
K
L
M
N
O
P

SY-199(4/4) BOARD

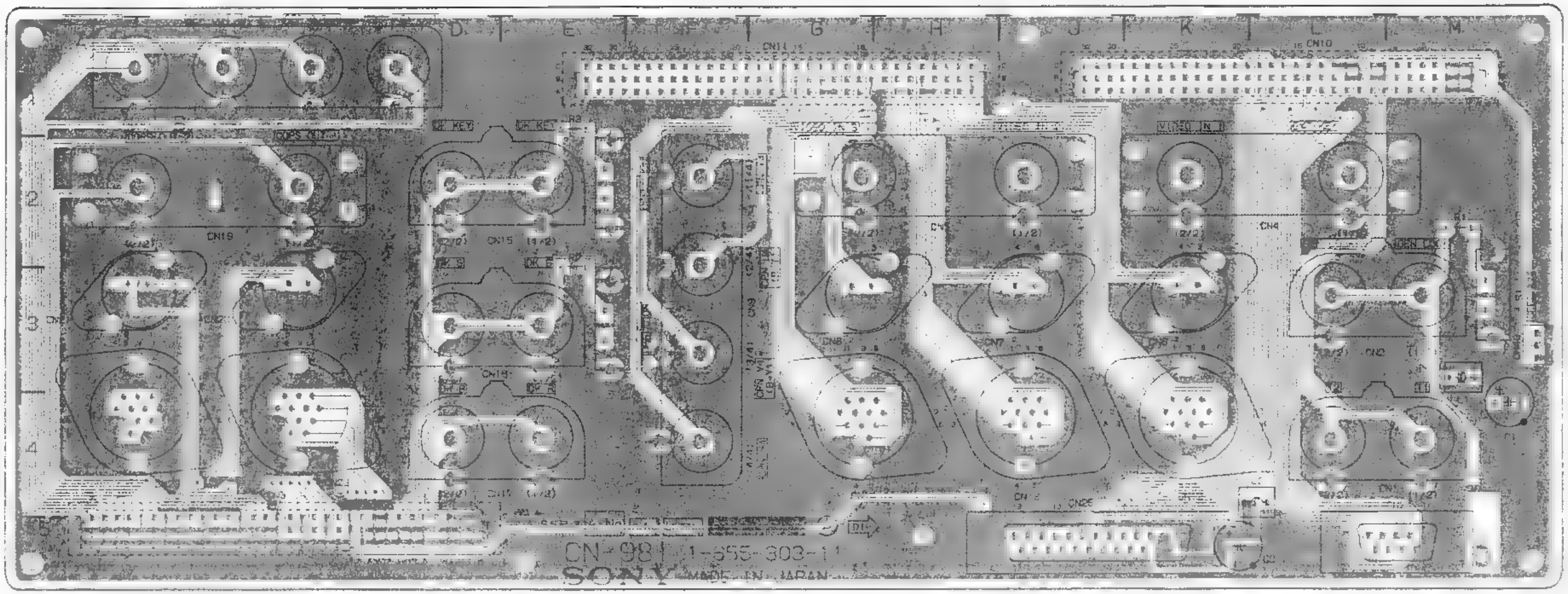
BOARD NO.1-655-300-11
DFS-300
DFS-300P

CN-981; Rear Panel Connecter

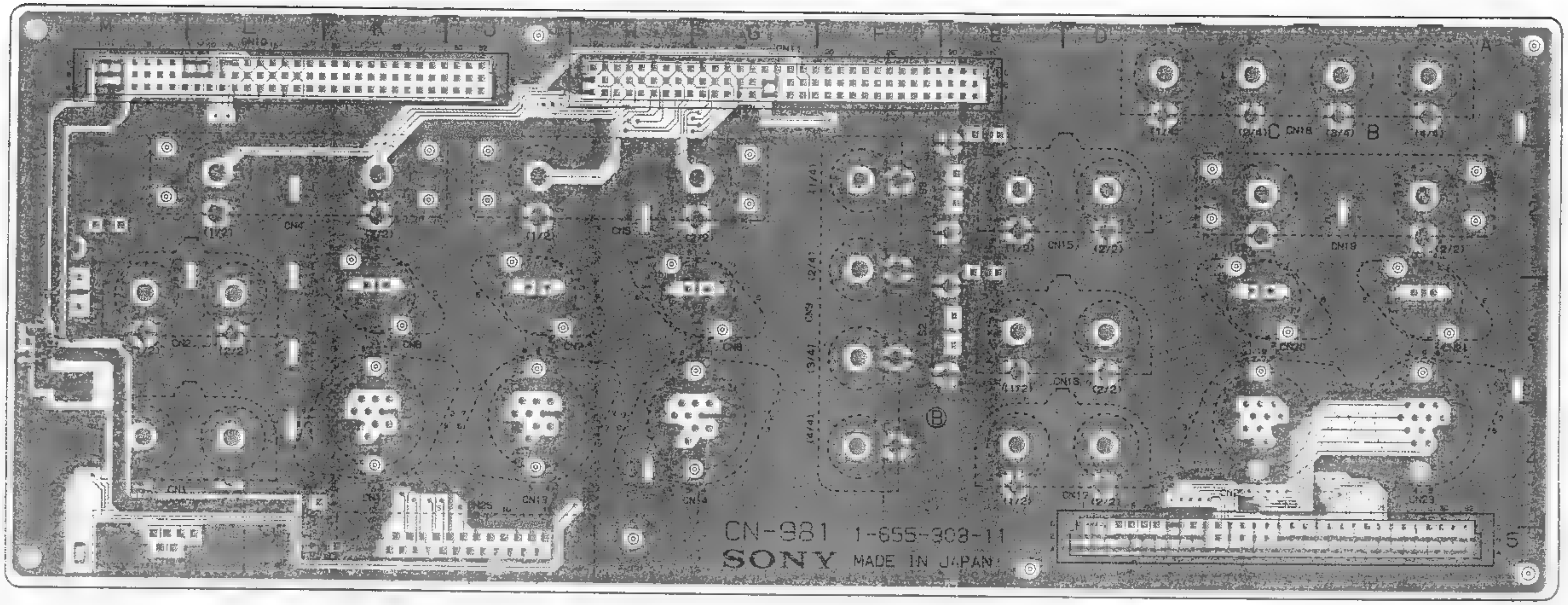
CN 981 (1-655-303-11)

CN1	J-4
CN2	L-3
CN3	*C-5
CN4	J-2
CN5	H-2
CN6	K-3
CN7	J-3
CN8	G-3
CN9	F-3
CN10	*L-1
CN11	*G-1
CN12	K-4
CN13	L-4
CN14	G-4
CN15	D-2
CN16	D-3
CN17	D-4
CN18	C-1
CN19	B-2
CN20	C-3
CN21	B-3
CN22	C-4
CN23	F-4
CN24	M-3
CN25	L-5
CN41	M-1
S	M5
S2	E1
S3	E5

* SOLDERING SIDE

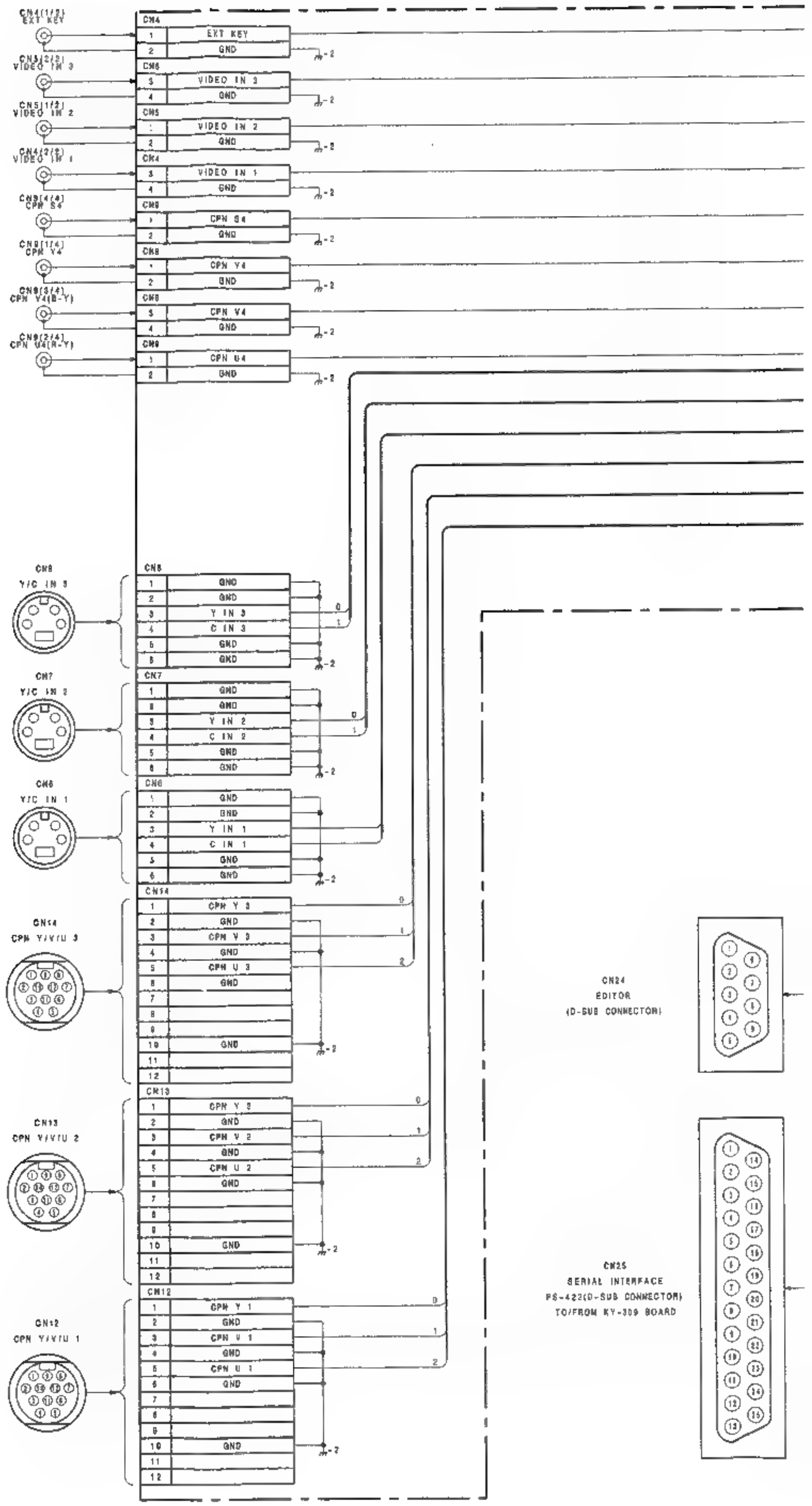

D
E
F
G
H
J
K
L
M
2
3
4
5
CN19
CN15
CN18
CN17
CN11
CN10
CN4
CN2
CN8
CN7
CN6
VIDEO IN
CN-981 1-655-303-11
SONY
MADE IN JAPAN

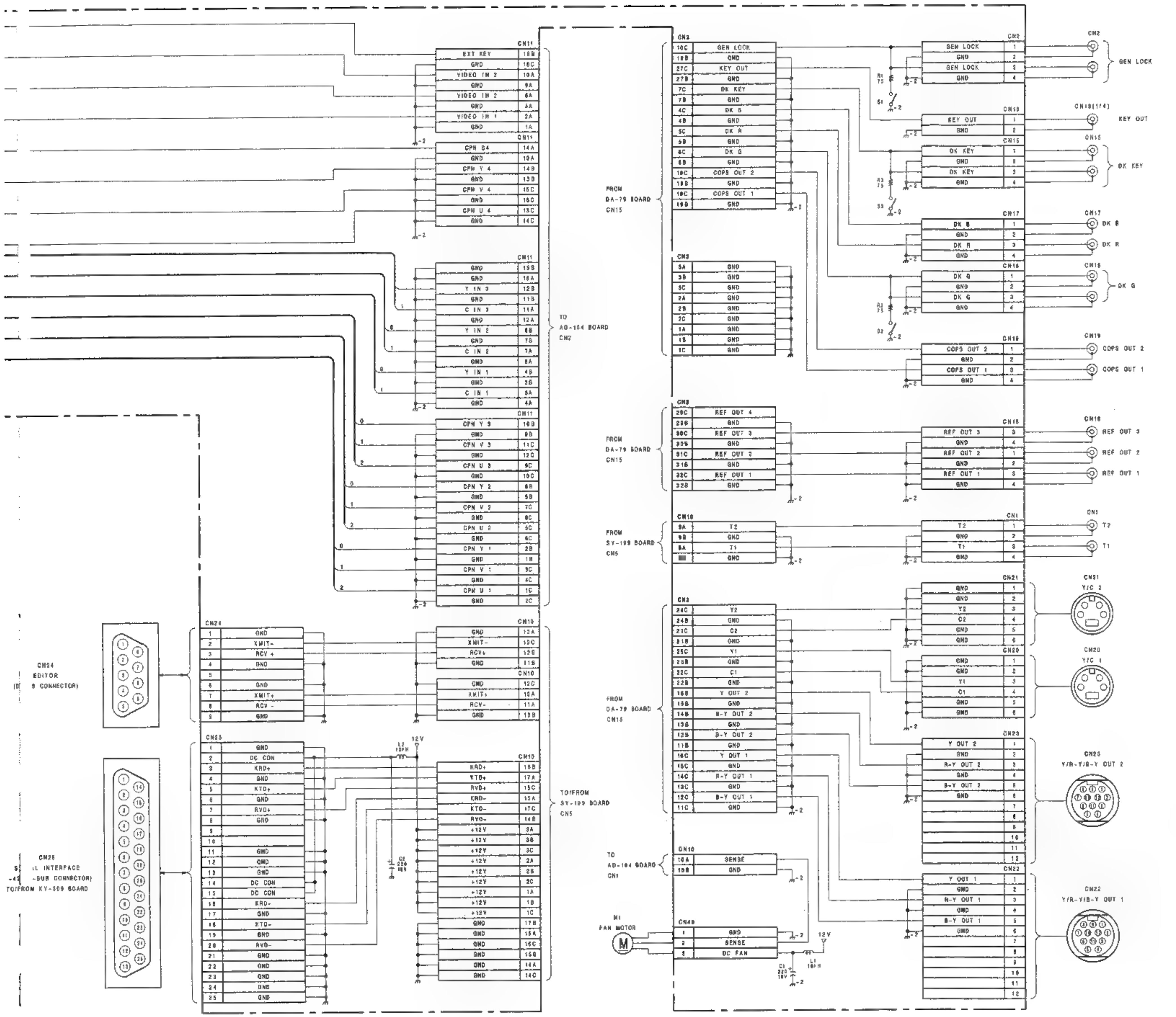
CN-981 -A SIDE-


M
L
K
J
H
G
F
E
D
C
B
A
1
2
3
4
5
CN10
CN11
CN4
CN5
CN2
CN3
CN6
CN7
CN8
CN9
CN12
CN13
CN14
CN15
CN16
CN17
CN18
CN19
CN20
CN21
CN23
CN25
(1/2)
(2/2)
(1/4)
(2/4)
(3/4)
(4/4)
Ⓑ
CN-981 1-655-308-11
SONY MADE IN JAPAN

CN-981 -B SIDE-

CN-981;Rear Panel Connector


CN4(1/2) EXT KEY
CN5(2/2) VIDEO IN 3
CN5(1/2) VIDEO IN 2
CN4(2/2) VIDEO IN 1
CN9(4/4) CPN S4
CN9(1/4) CPN Y4
CN9(3/4) CPN V4(B-Y)
CN9(2/4) CPN U4(R-Y)
CN4
EXT KEY
GND
CN5
VIDEO IN 3
VIDEO IN 2
VIDEO IN 1
CN9
CPN S4
CPN Y4
CPN V4
CPN U4
CN8 Y/C IN 3
Y IN 3
C IN 3
CN7 Y/C IN 2
Y IN 2
C IN 2
CN6 Y/C IN 1
Y IN 1
C IN 1
CN14 CPN Y/V/U 3
CPN Y 3
CPN V 3
CPN U 3
CN13 CPN Y/V/U 2
CPN Y 2
CPN V 2
CPN U 2
CN12 CPN Y/V/U 1
CPN Y 1
CPN V 1
CPN U 1
CN24
EDITOR
(D-SUB CONNECTOR)
CN25
SERIAL INTERFACE
RS-422(D-SUB CONNECTOR)
TO/FROM KY-309 BOARD


CN11
EXT KEY
VIDEO IN 3
VIDEO IN 2
VIDEO IN 1
CPN S4
CPN Y 4
CPN V 4
CPN U 4
Y IN 3
C IN 3
Y IN 2
C IN 2
Y IN 1
C IN 1
CPN Y 3
CPN V 3
CPN U 3
CPN Y 2
CPN V 2
CPN U 2
CPN Y 1
CPN V 1
CPN U 1
GND
TO AD-104 BOARD CN2
CN24
EDITOR
9 CONNECTOR
XMIT-
XMIT+
RCV+
RCV-
CN25
L INTERFACE
SUB CONNECTOR
TO/FROM KY-309 BOARD
DC CON
KRD+
KTO+
RVO+
KRD-
KTO-
RVO-
+12V
TO/FROM SY-199 BOARD CN5
CN3
GEN LOCK
KEY OUT
DK KEY
DK B
DK R
DK G
COPS OUT 2
COPS OUT 1
FROM DA-79 BOARD CN15
CN8
REF OUT 4
REF OUT 3
REF OUT 2
REF OUT 1
CN10
T2
T1
FROM SY-199 BOARD CN5
CN2
Y2
C2
Y1
C1
Y OUT 2
B-Y OUT 2
R-Y OUT 2
Y OUT 1
R-Y OUT 1
B-Y OUT 1
SENSE
TO AD-104 BOARD CN1
M1
FAN MOTOR
CN40
DC FAN
12V
CN2
GEN LOCK
CN13(1/4)
KEY OUT
CN15
DK KEY
CN17
DK B
DK R
CN18
DK G
CN19
COPS OUT 2
COPS OUT 1
CN16
REF OUT 3
REF OUT 2
REF OUT 1
CN1
T2
T1
CN21
Y/C 2
CN20
Y/C 1
CN23
Y/R-Y/B-Y OUT 2
CN22
Y/R-Y/B-Y OUT 1

CN-981 BOARD

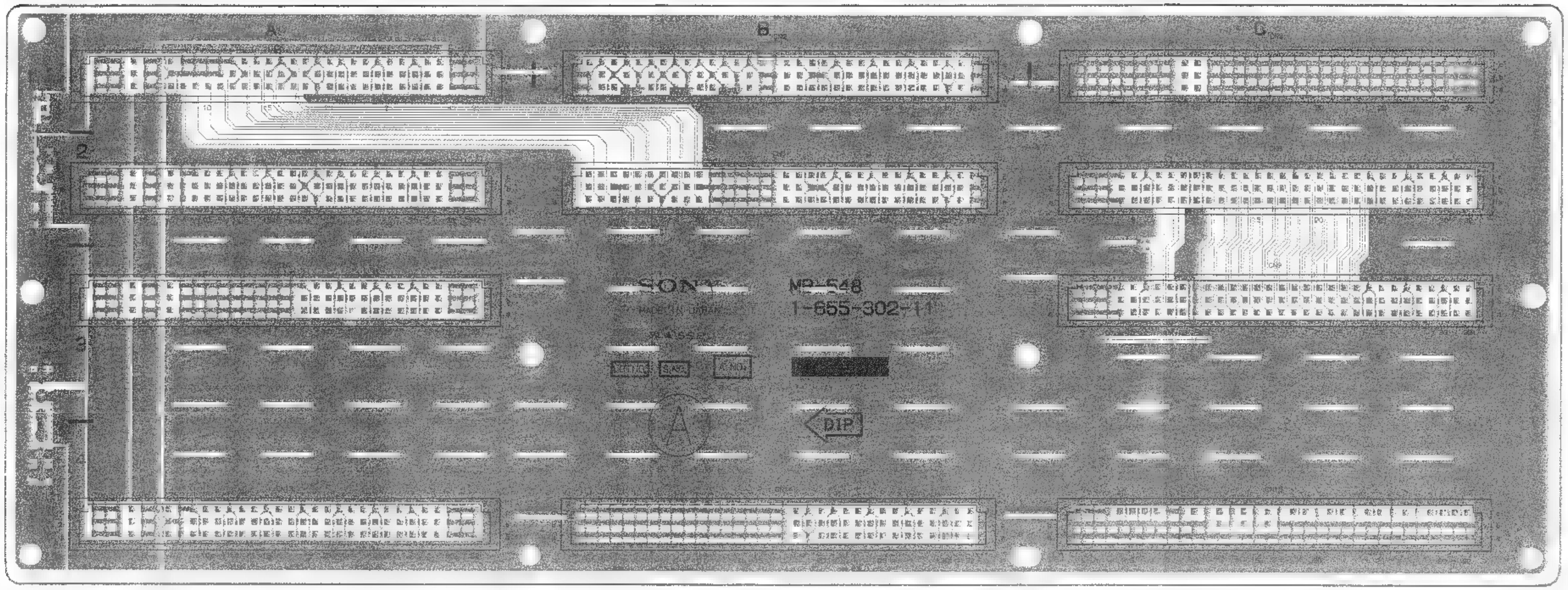
BOARD NO. 1-655-303-11
DFS-300
DFS-300P

MB-548; Mother Board

MB-548(1-655-302-11)

CN1	A-1
CN2	B-1
CN3	C-1
CN4	A-2
CN5	B-2
CN6	C-2
CN7	A-3
CN9	C-3
CN13	A-4
CN14	B-4
CN15	C-4
CN22	*A-1
CN23	*A-4
CN24	*A-2

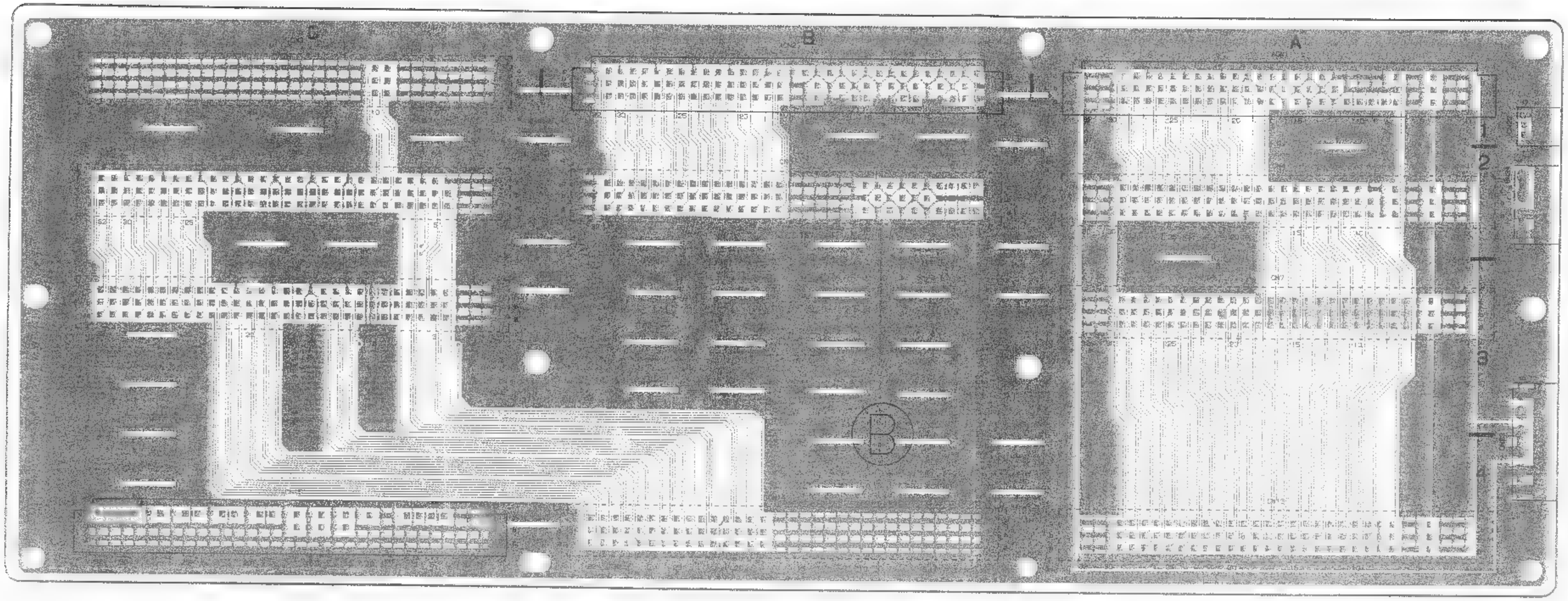
*: SOLDERING SIDE


A
B
C
1
2
3
4
SONY
MADE IN JAPAN
MB-548
1-655-302-11
A
DIP

MB-548 -A SIDE-

1-655-302-11

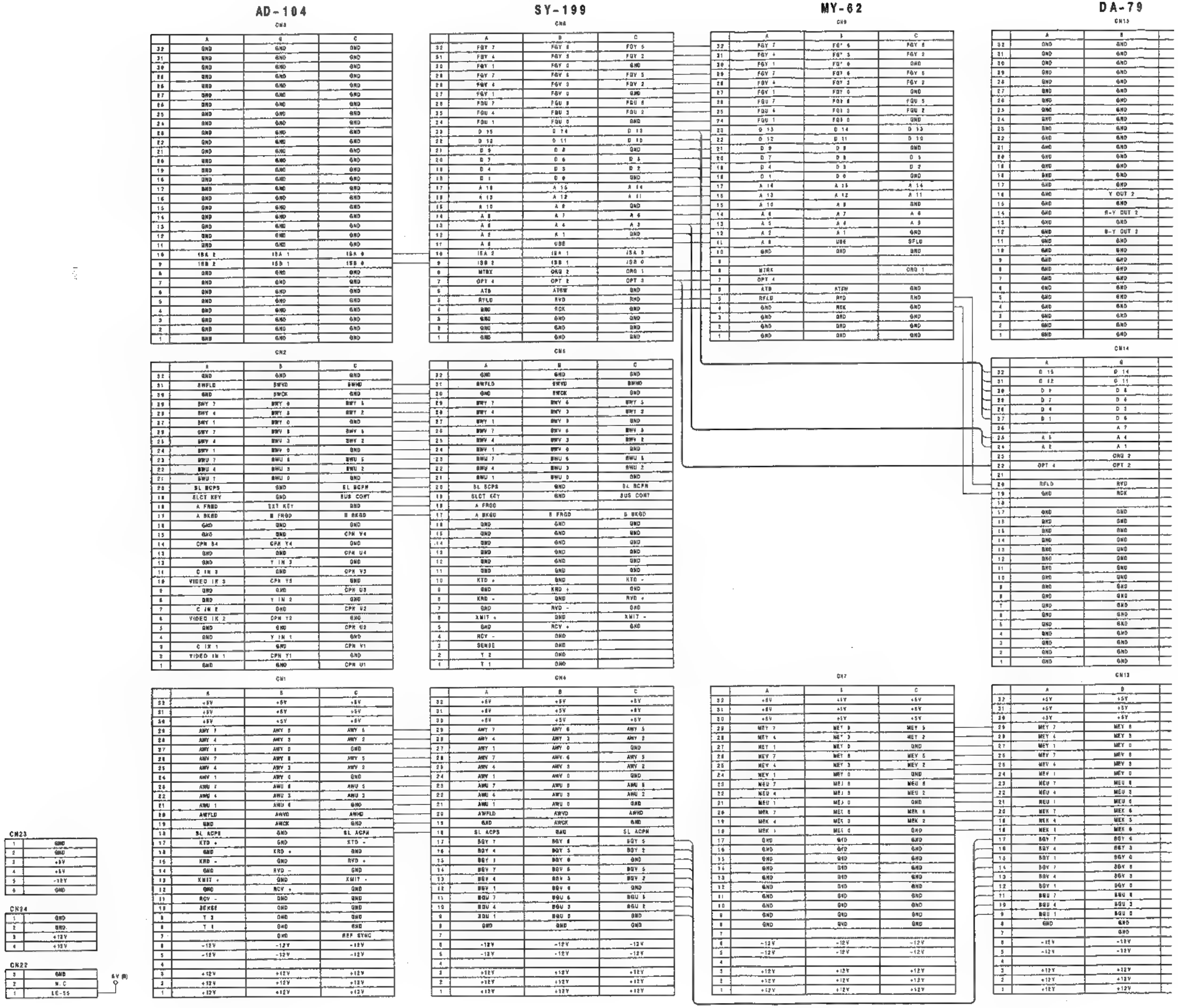
[illegible]



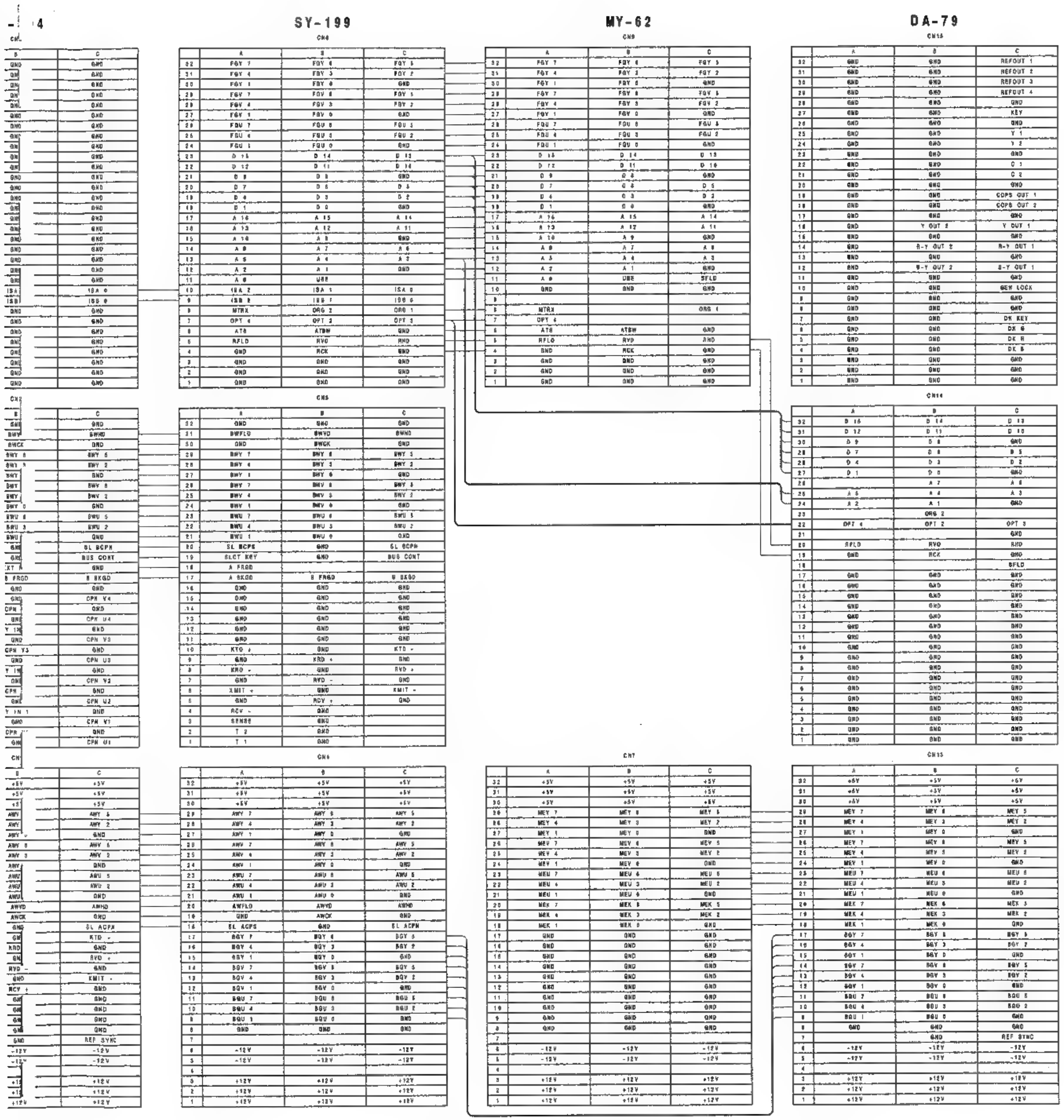
MB-548 -B SIDE-

1-655-362-11
DFS-500-300P

MB-548;Mother Board


AD-104
SY-199
MY-62
DA-79
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN9
CN13
CN14
CN15
CN22
CN23
CN24
+5V (B)

A
B
C
D
E
F
G
H


SY-199
MY-62
DA-79
E
F
G
H
I
J
K
L
1
2
3
4
5

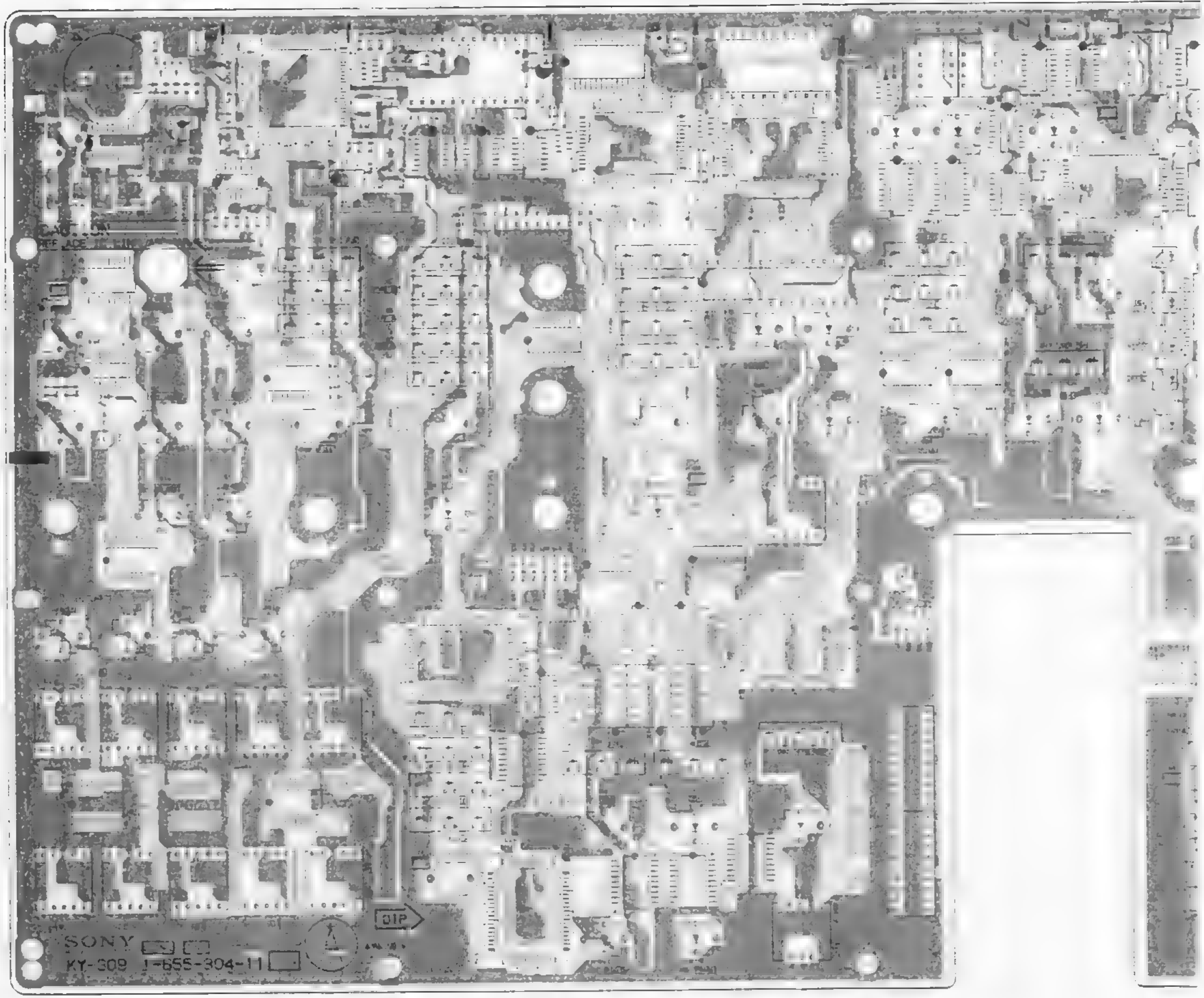
MB-548 BOARD

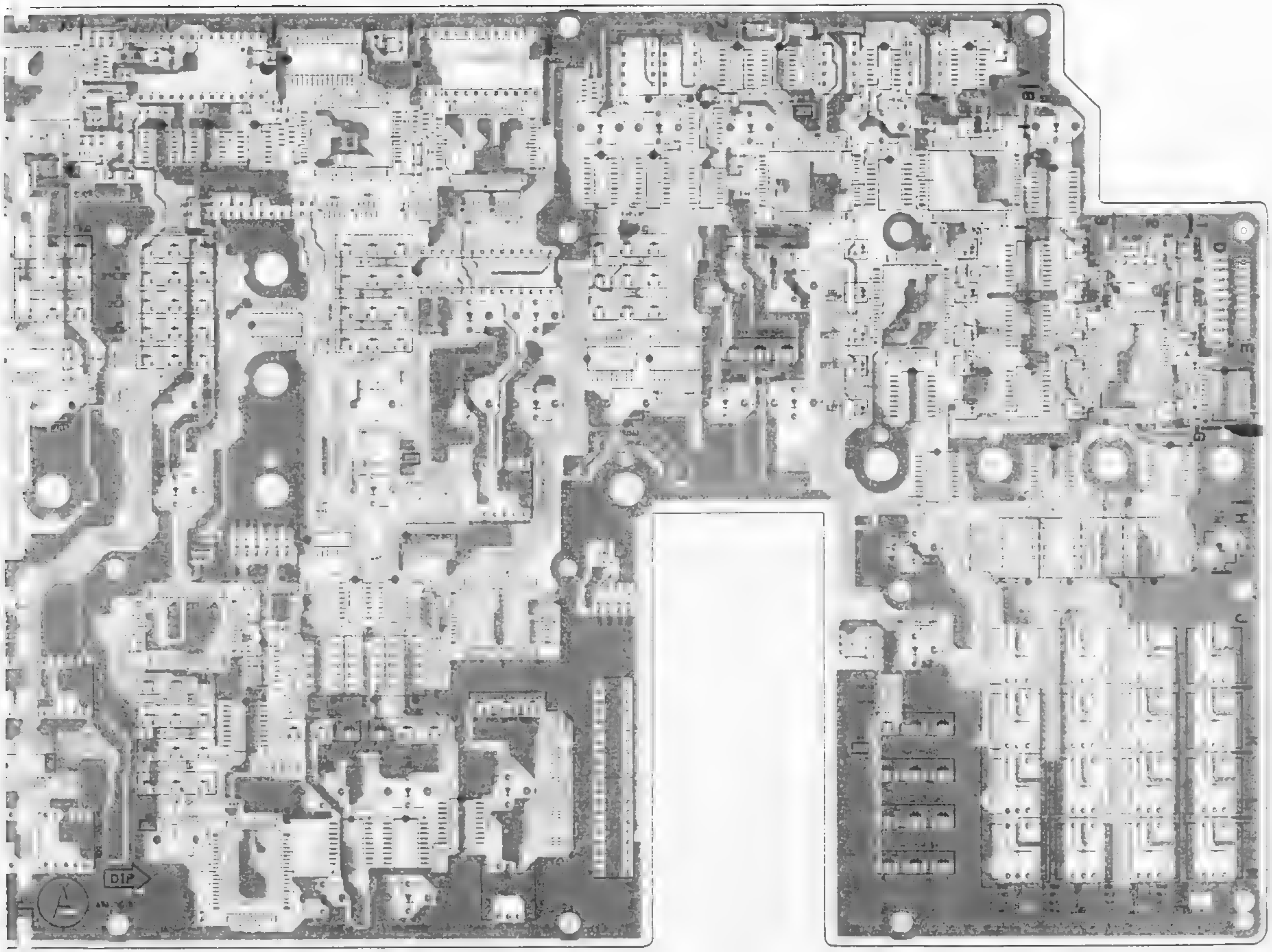
BOARD NO.1-655-302-11
DFS-300
DFS-300P

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	L-3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	L-2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	L-1
[illegible]	[illegible]	[illegible]	A	[illegible]	[illegible]	[illegible]	M-3
[illegible]	[illegible]	[illegible]	A	[illegible]	[illegible]	[illegible]	M-3
IC1	*C-15			[illegible]	[illegible]		M-2
IC2	C-13	RB1		[illegible]	[illegible]		M-1
IC3	C-12	RB2		[illegible]	[illegible]		
IC4		RB3		[illegible]	[illegible]		B-11
IC6	C-15	RB4		[illegible]	[illegible]		

* SOLDERING S

KY-309; Function Key


CAUTION
SONY
KY-309 1-655-304-11
DIP



KY-309 -A SIDE-

04-11

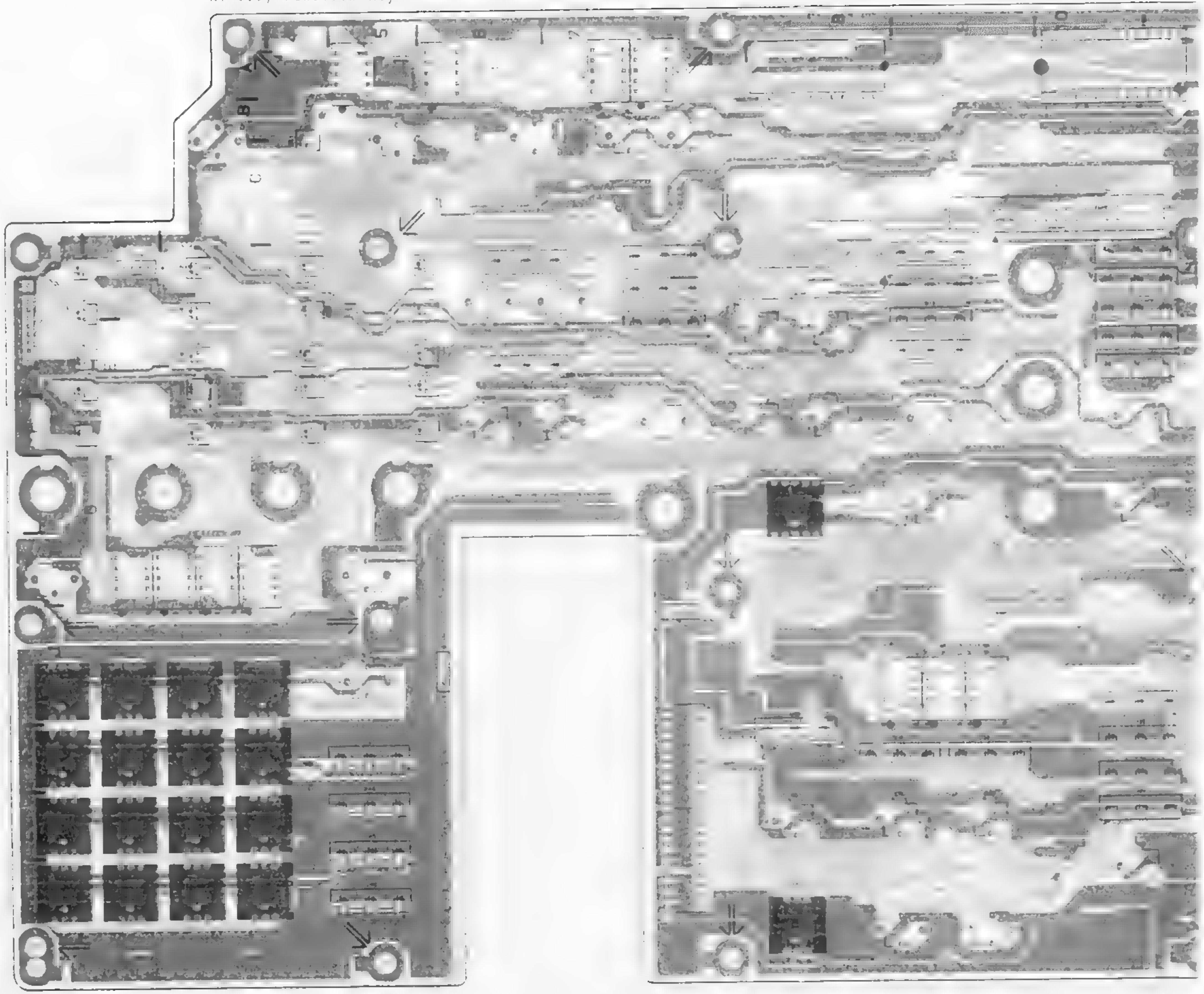
300P

KY 309 (1-655-304-11)

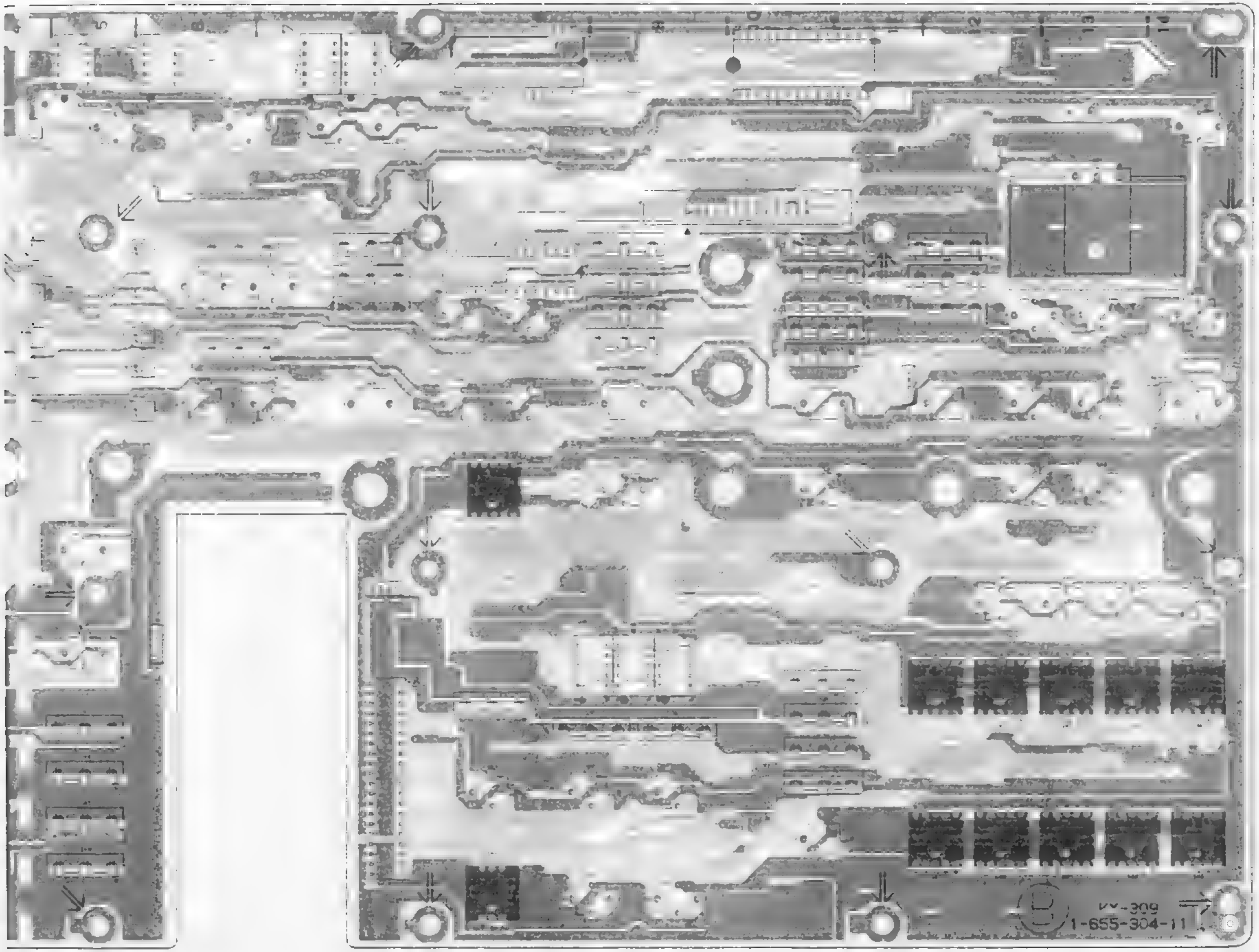
[illegible]	[illegible]	IC7	[illegible]	[illegible]	[illegible]	RB545	H-2
		C8	[illegible]	[illegible]	[illegible]	RB546	G-8
CN114	* A-10	IC10	[illegible]	[illegible]	[illegible]	RB547	B-4
		IC11	[illegible]	[illegible]	[illegible]		
CN1	* C-1	IC12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CN2	* D-2	IC13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CN3	* F-14	IC14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CN4	* F-11	IC15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CN5	* J-7	IC16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CN6	* J-9	IC17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CN7	* E-1	IC18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CN8	* J-8	IC19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		IC20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	IC21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D2	[illegible]	IC22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D3	[illegible]	IC23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D4	[illegible]	IC101	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D5	[illegible]	IC102	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D6	[illegible]	IC103	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D7	[illegible]	IC104	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D8	[illegible]	IC105		[illegible]		[illegible]	[illegible]
D9	[illegible]	IC106	[illegible]	[illegible]		[illegible]	[illegible]
D10	[illegible]	IC107		[illegible]	[illegible]	[illegible]	[illegible]
D11	[illegible]	IC108		[illegible]	[illegible]	[illegible]	[illegible]
D12	[illegible]	IC109		[illegible]	[illegible]	[illegible]	[illegible]
D13	[illegible]	IC110		[illegible]		[illegible]	[illegible]
D14	[illegible]	IC111		[illegible]		[illegible]	[illegible]
D15	[illegible]	IC112	[illegible]	[illegible]		[illegible]	
D16	[illegible]	IC113	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D17	[illegible]	IC114		[illegible]	[illegible]	[illegible]	[illegible]
D18	[illegible]	C115		[illegible]	[illegible]	[illegible]	[illegible]
D19	[illegible]	IC116	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D20	[illegible]	IC117	[illegible]	[illegible]		[illegible]	[illegible]
D21	[illegible]	IC118	[illegible]	[illegible]		[illegible]	[illegible]
D22	[illegible]	IC119	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D23	[illegible]	IC120	[illegible]	[illegible]		[illegible]	[illegible]
D24		IC121		[illegible]		[illegible]	
D25		C122		[illegible]			
D26	[illegible]	IC123		[illegible]		[illegible]	
D27	[illegible]	IC124		[illegible]		[illegible]	[illegible]
D28		IC125		[illegible]	[illegible]		
D29	[illegible]	IC201	[illegible]	[illegible]	[illegible]	[illegible]	
D30	[illegible]	C202		[illegible]		[illegible]	
D31	[illegible]			[illegible]	[illegible]	[illegible]	
				[illegible]		[illegible]	[illegible]
D33		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D34			[illegible]	[illegible]		[illegible]	[illegible]
D35		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
D36		[illegible]	[illegible]			[illegible]	[illegible]
D37				[illegible]		[illegible]	[illegible]
D38						[illegible]	
D39				[illegible]			
D40						[illegible]	[illegible]
D41		[illegible]		[illegible]			[illegible]
D42	[illegible]			[illegible]	[illegible]		
D43		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D44		[illegible]	[illegible]	[illegible]	[illegible]		
D45	[illegible]	[illegible]	[illegible]	[illegible]			
D46	[illegible]	[illegible]	[illegible]		[illegible]		
D47	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
D48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
D49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]		[illegible]			[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]			[illegible]		[illegible]	
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]			[illegible]		[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]			[illegible]			[illegible]
	[illegible]	RB1	[illegible]	[illegible]	[illegible]		[illegible]
		RB2		[illegible]	[illegible]		
[illegible]	[illegible]	RB3		[illegible]	[illegible]	[illegible]	[illegible]
		RB4		[illegible]			

* SOLDERING SIDE

KY-309; Function Key



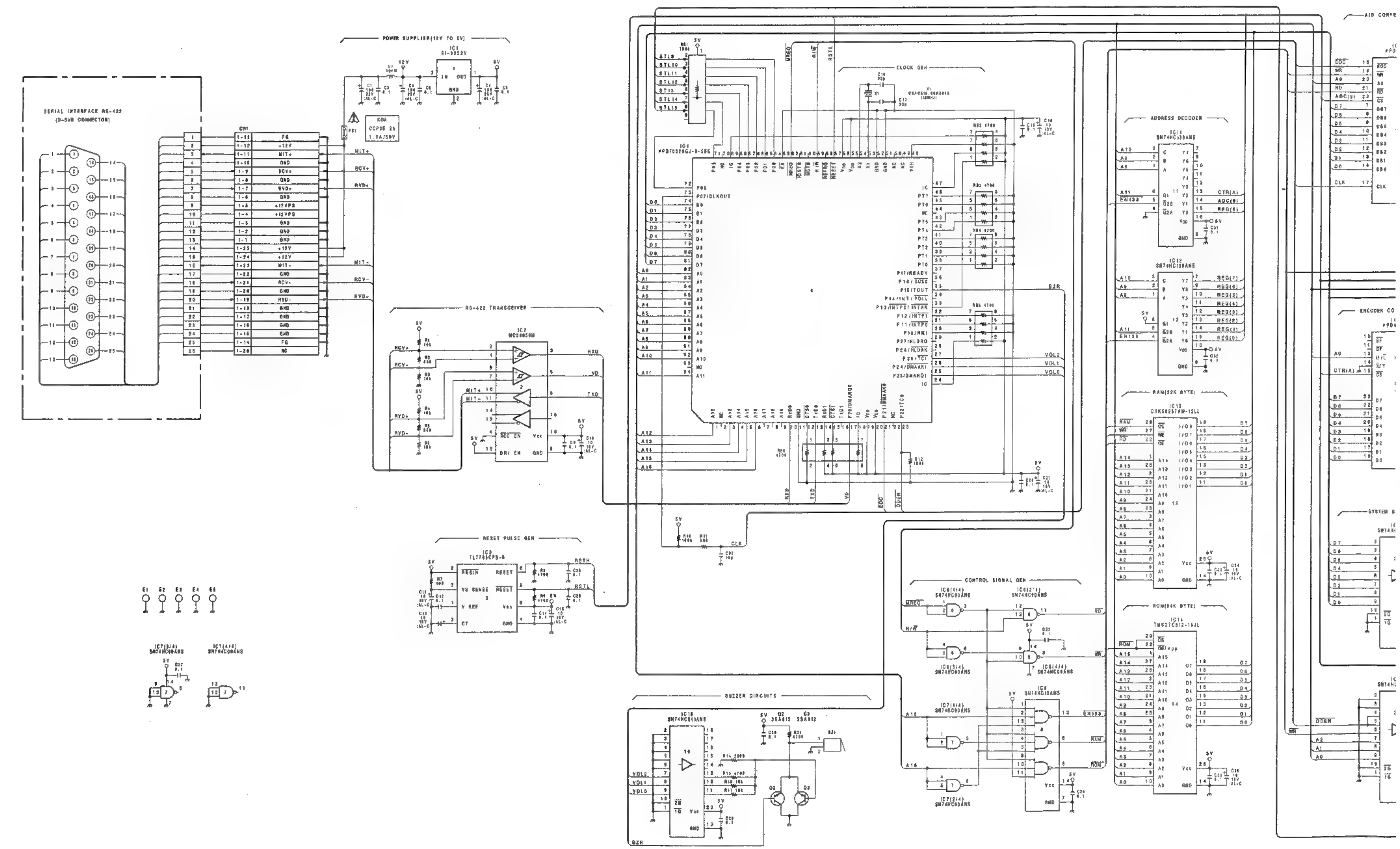
Function Key


KY-309
1-655-304-11

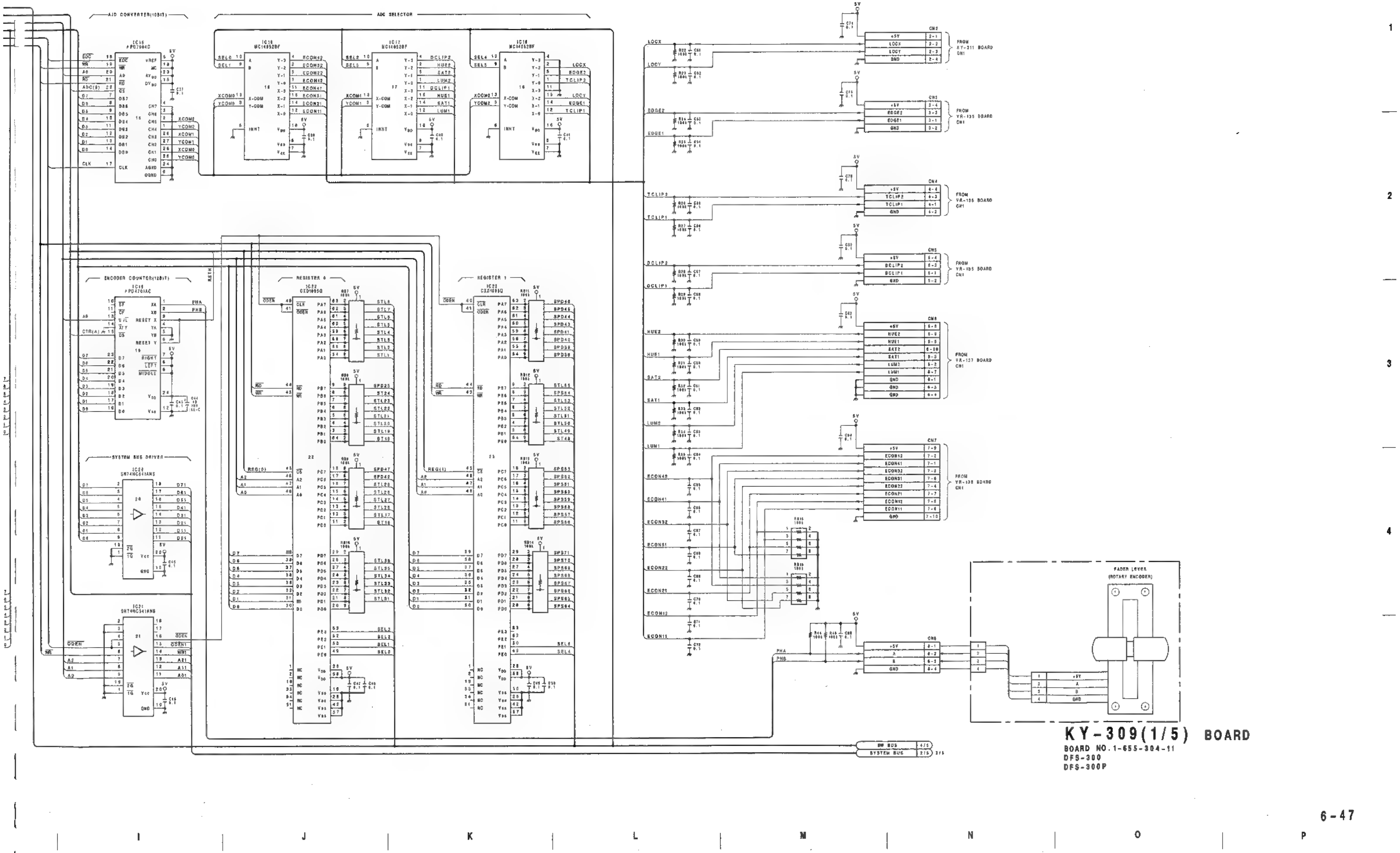
KY-309 -B SIDE-

1-655-304-11
DFS-300/300P

KY-309(1/5);CPU


SERIAL INTERFACE RS-422 (D-SUB CONNECTOR)
CN1
POWER SUPPLIER(12V TO 5V)
IC1 SI-3052V
RS-422 TRANSCEIVER
IC2 MC34050M
RESET PULSE GEN
IC3 TL7705CPS-S
SINGLE CHIP MICROCOMPUTER(V25;8MHz)
CLOCK GEN
IC4 µPD70320GJ-8-5BG
ADDRESS DECODER
IC11 SN74HC138ANS
IC12 SN74HC138ANS
RAM(32K BYTE)
IC13 CXK58257M-12LL
ROM(64K BYTE)
IC14 TMS27C512-15JL
CONTROL SIGNAL GEN
IC6 SN74HC00ANS
IC7 SN74HC00ANS
IC8 SN74HC10ANS
BUZZER CIRCUITS
IC16 SN74HC541ANS
Q2 2SA812
Q3 2SA812
BZ1
A/D CONVE
ENCODER CO
SYSTEM B
MIT+
MIT-
RCV+
RCV-
RVD+
RVD-
RXD
TXD
VD
BZR
CLK
RSTH
RSTL
E1 E2 E3 E4 E5

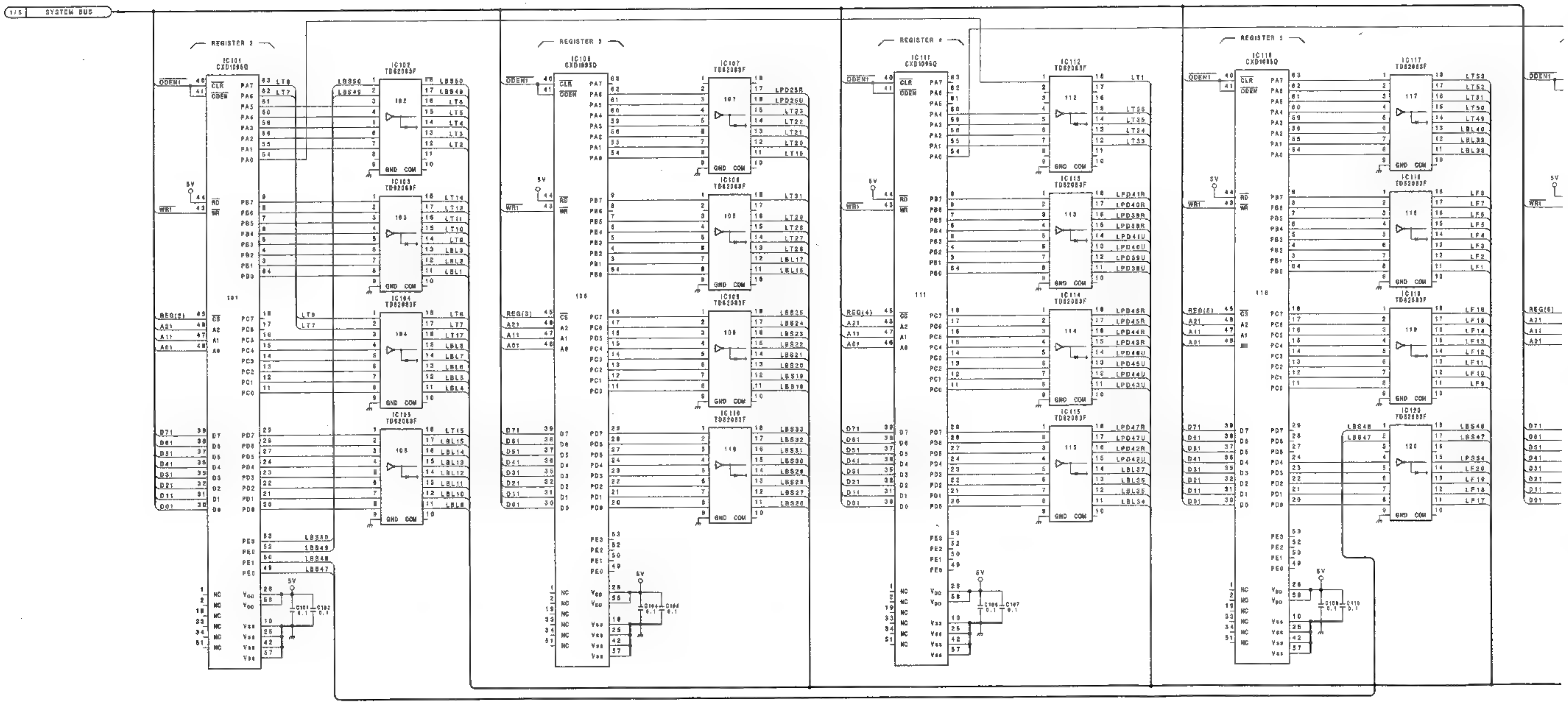
A | B | C | D | E | F | G | H

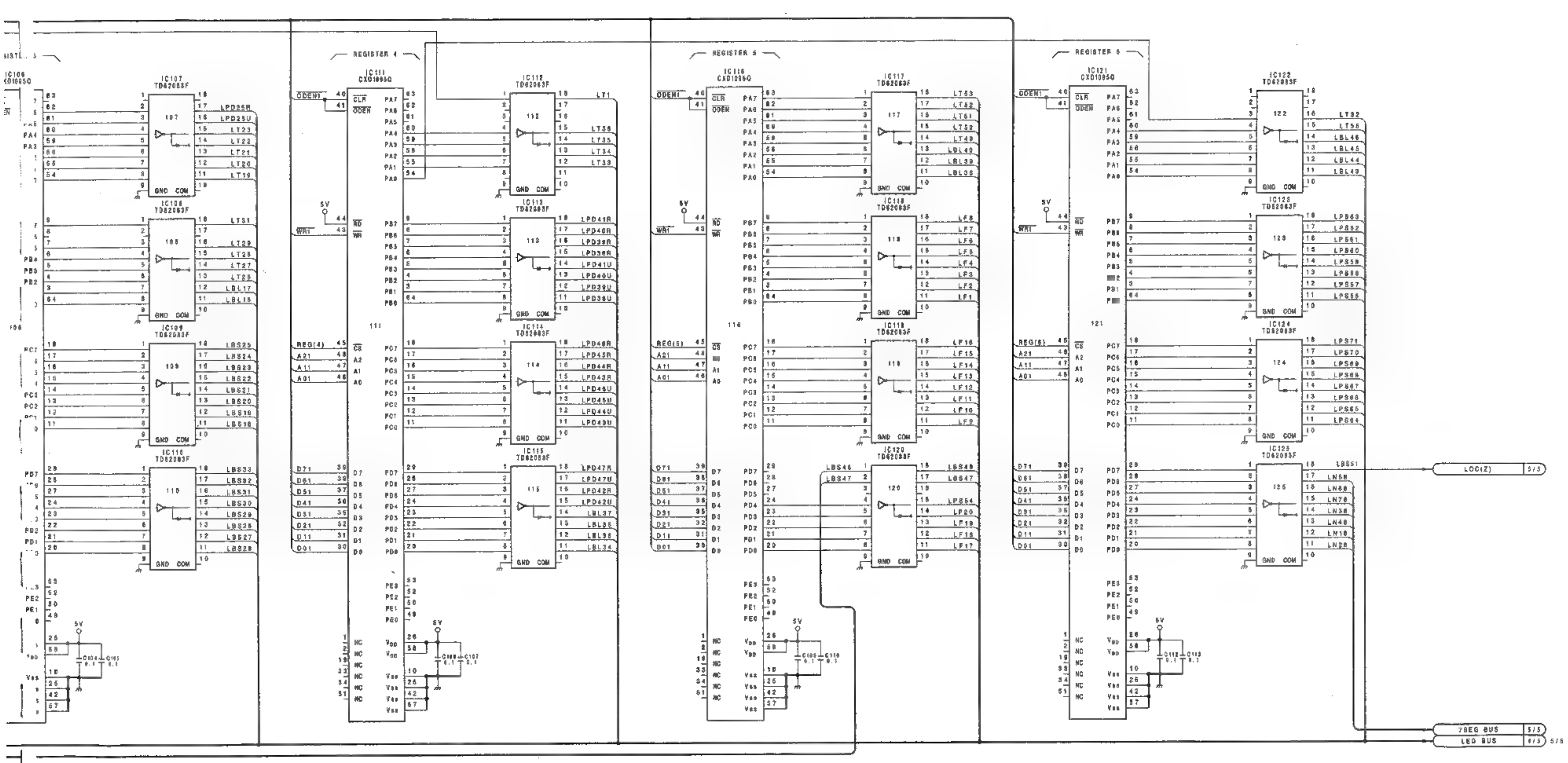

A/D CONVERTER(10BIT)
IC15
μPD7004C
ADC SELECTOR
IC16
MC14052BF
IC17
MC14052BF
IC18
MC14052BF
ENCODER COUNTER(12BIT)
IC19
μPD4701AC
SYSTEM BUS DRIVER
IC20
SN74HC541ANS
IC21
SN74HC541ANS
REGISTER 0
IC22
CXD1095Q
REGISTER 1
IC23
CXD1095Q
FROM KY-311 BOARD CN1
FROM VR-135 BOARD CN1
FROM VR-135 BOARD CN1
FROM VR-135 BOARD CN1
FROM VR-137 BOARD CN1
FROM VR-138 BOARD CN1
FADER LEVER (ROTARY ENCODER)
SW BUS
SYSTEM BUS
1
2
3
4
I
J
K
L
M
N
O
P

KY-309(1/5) BOARD

BOARD NO.1-655-304-11
DFS-300
DFS-300P

KY-309(2/5);LED Driver


1/5
SYSTEM BUS
REGISTER 2
IC101
CXD1095Q
IC102
TD62083F
IC103
TD62083F
IC104
TD62083F
IC105
TD62083F
REGISTER 3
IC106
CXD1095Q
IC107
TD62083F
IC108
TD62083F
IC109
TD62083F
IC110
TD62083F
REGISTER 4
IC111
CXD1095Q
IC112
TD62083F
IC113
TD62083F
IC114
TD62083F
IC115
TD62083F
REGISTER 5
IC116
CXD1095Q
IC117
TD62083F
IC118
TD62083F
IC119
TD62083F
IC120
TD62083F
ODEN1
WR1
REG(2)
REG(3)
REG(4)
REG(5)
REG(6)
5V
GND
COM
C101
C102
C106
C107
C108
C109
C110
C111


REGISTER 4
REGISTER 5
REGISTER 6
IC107 TD62083F
IC108 TD62083F
IC109 TD62083F
IC110 TD62083F
IC111 CXD1095Q
IC112 TD62083F
IC113 TD62083F
IC114 TD62083F
IC115 TD62083F
IC116 CXD1095Q
IC117 TD62083F
IC118 TD62083F
IC119 TD62083F
IC120 TD62083F
IC121 CXD1095Q
IC122 TD62083F
IC123 TD62083F
IC124 TD62083F
IC125 TD62083F
ODEN1
WR1
REG(4)
REG(5)
REG(6)
5V
GND COM
LOC(Z) 5/5
7SEG BUS 5/5
LED BUS 4/5

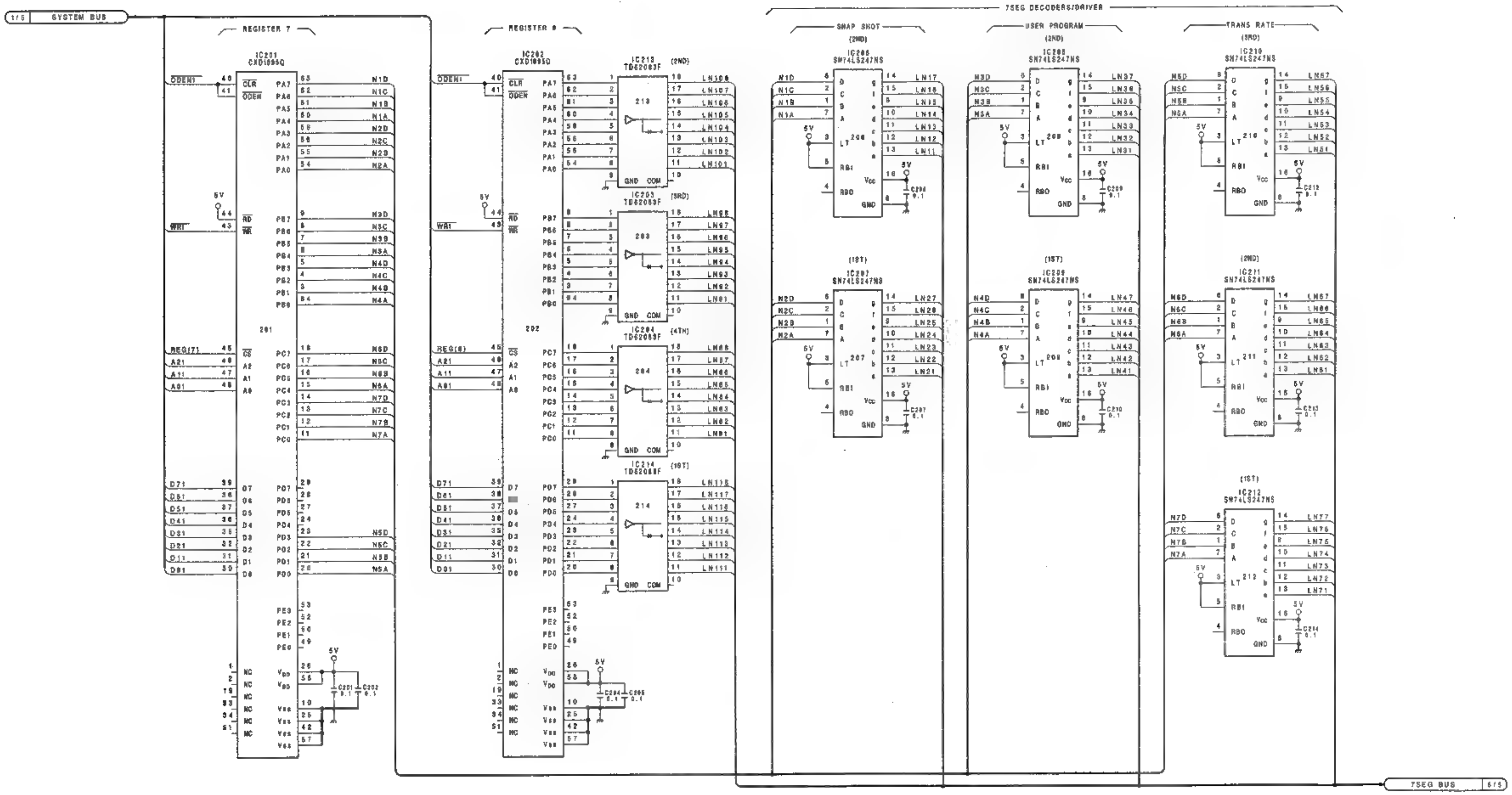
1
2
3
4
5

KY-309(2/5) BOARD

BOARD NO.1-655-304-11
DFS-300
DFS-300P

E F G H I J K L

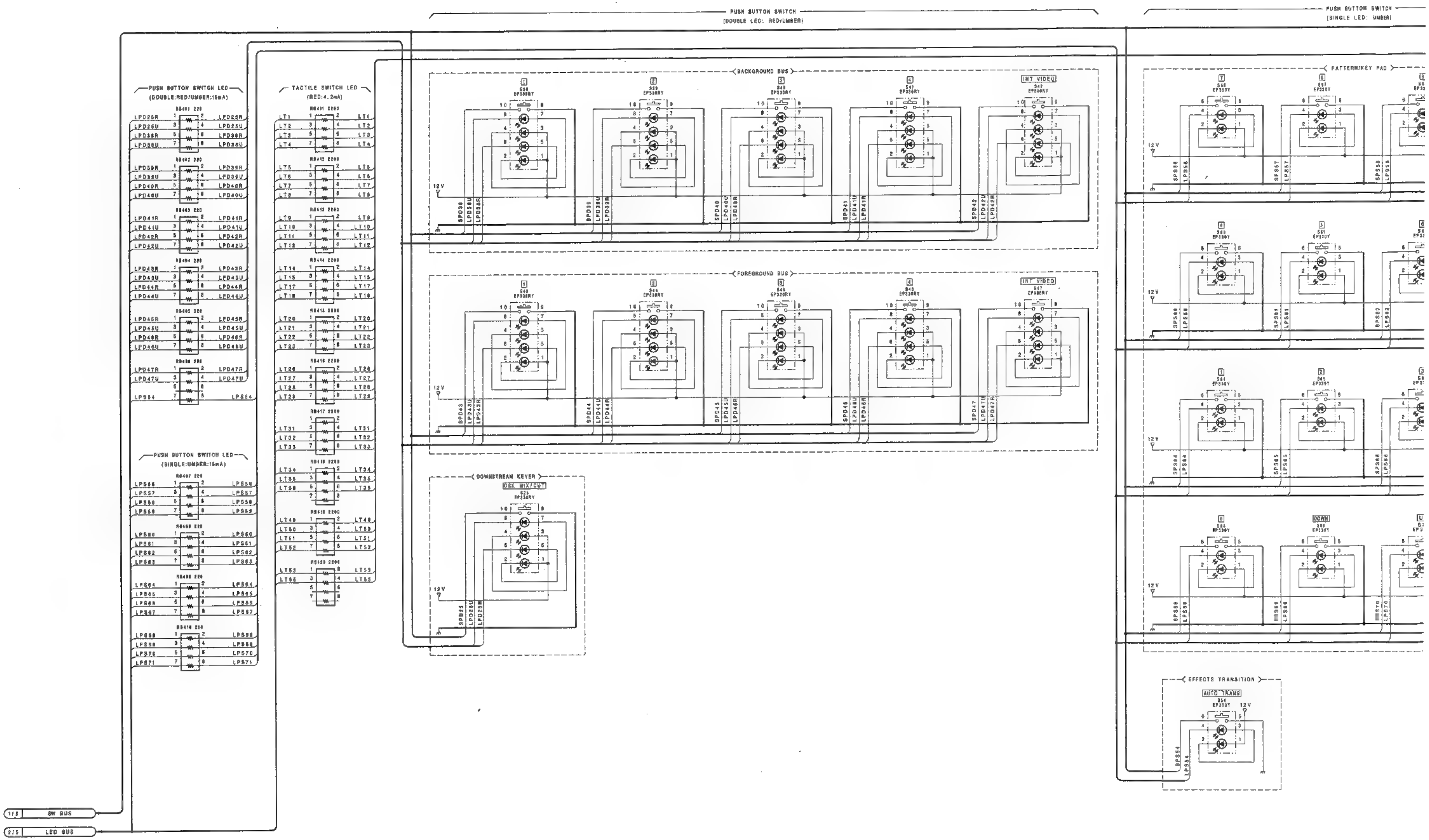
KY-309(3/5);7 SEG LED Driver


1/5 SYSTEM BUS
REGISTER 7
IC201 CXD1095Q
REGISTER 8
IC202 CXD1095Q
IC213 TD62083F (2ND)
IC203 TD62083F (3RD)
IC204 TD62083F (4TH)
IC214 TD62083F (1ST)
7SEG DECODERS/DRIVER
SNAP SHOT
USER PROGRAM
TRANS RATE
SN74LS247NS
7SEG BUS 5/5

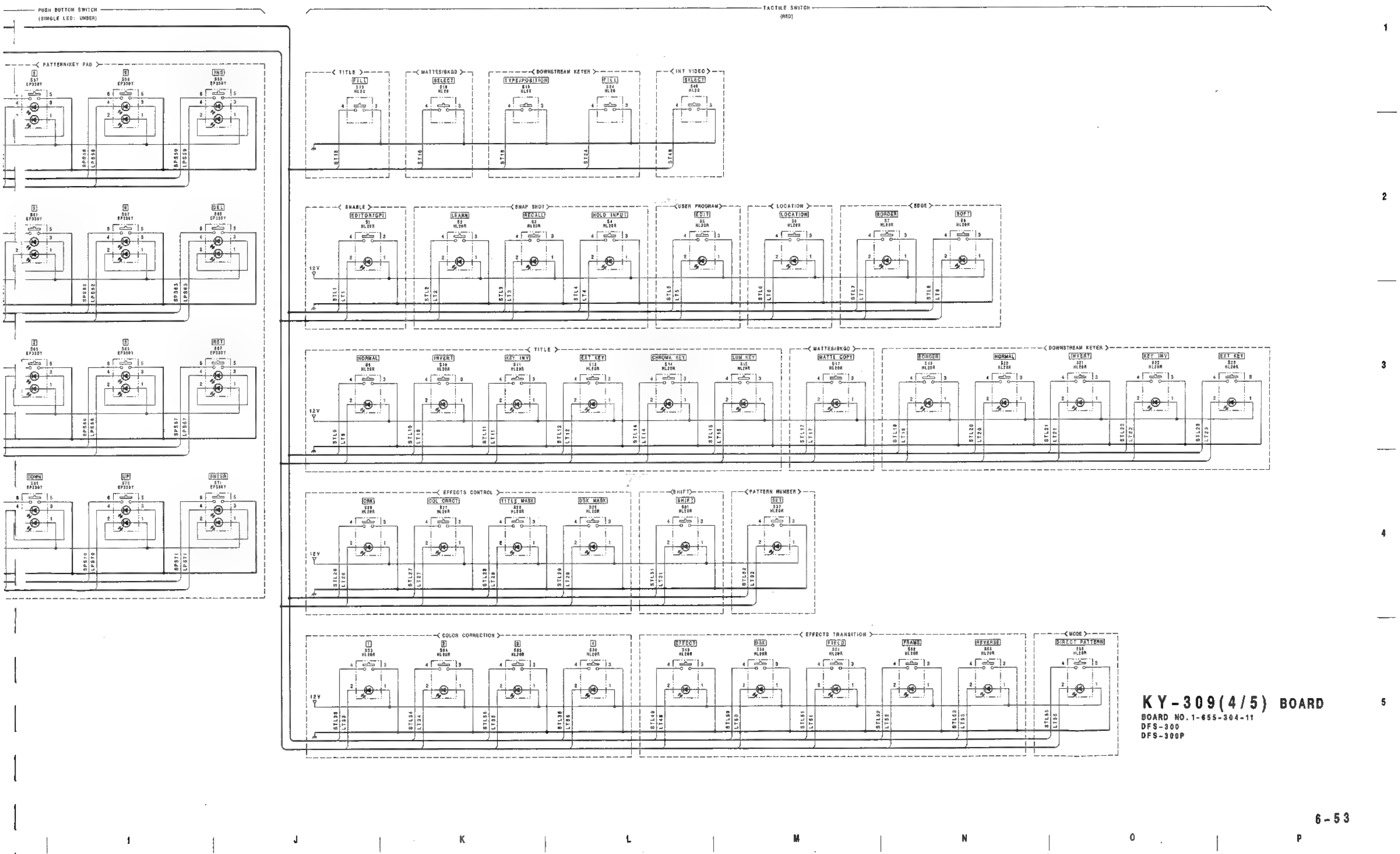
KY-309(3/5) BOARD

BOARD NO.1-655-304-11
DFS-300
DFS-300P

KY-309(4/5);Switch

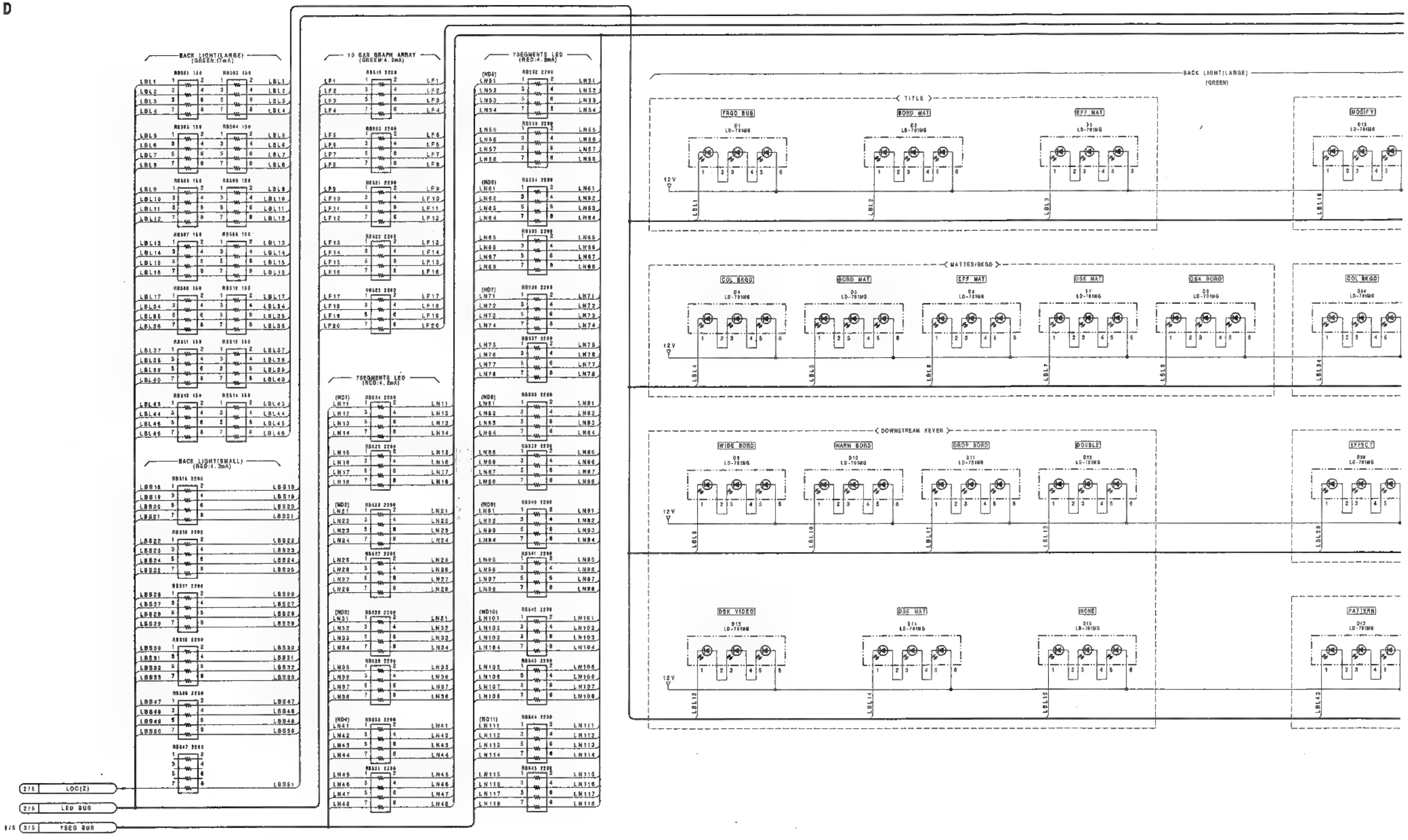

PUSH BUTTON SWITCH
(DOUBLE LED: RED/UMBER)
PUSH BUTTON SWITCH
(SINGLE LED: UMBER)
PUSH BUTTON SWITCH LED
(DOUBLE:RED/UMBER:15mA)
TACTILE SWITCH LED
(RED:4.2mA)
PUSH BUTTON SWITCH LED
(SINGLE:UMBER:15mA)
RB401 220
RB402 220
RB403 220
RB404 220
RB411 2200
RB412 2200
RB413 2200
RB414 2200
LPD25R
LPD25U
LPD30R
LPD30U
LPD39R
LPD39U
LPD40R
LPD40U
LPD41R
LPD41U
LPD42R
LPD42U
LT1
LT2
LT3
LT4
LT5
LT6
LT7
LT8
LT9
LT10
LT11
LT12
LT14
BACKGROUND BUS
FOREGROUND BUS
INT VIDEO
DOWNSTREAM KEYER
DSK MIX/CUT
PATTERN/KEY PAD
DOWN
EFFECTS TRANSITION
AUTO TRANS
12V
1/5
SW BUS
2/5
LED BUS

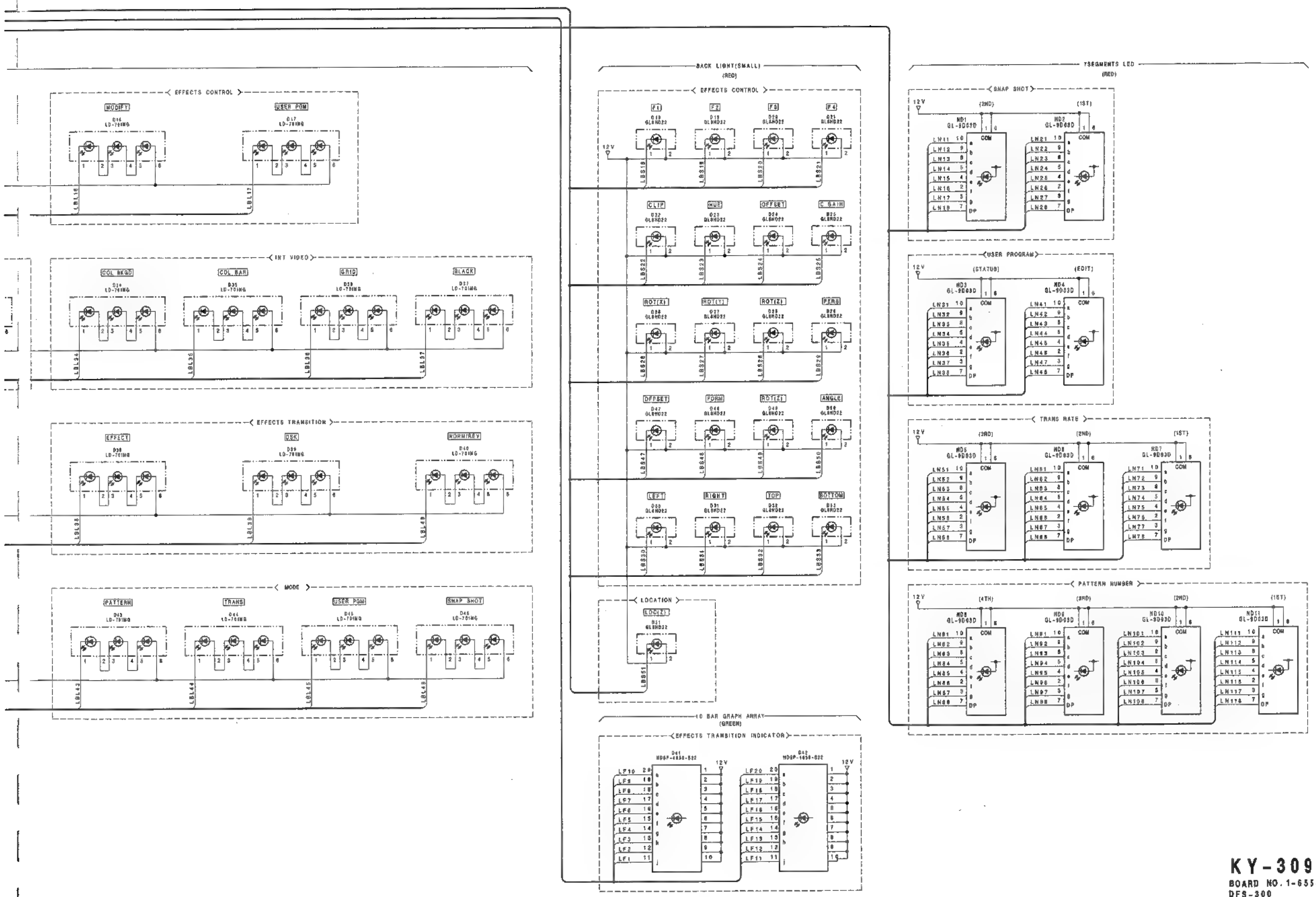
A B C D E F G H


PUSH BOTTON SWITCH
(SINGLE LED: UMBER)
TACTILE SWITCH
(RED)
PATTERN/KEY PAD
INS
DEL
RST
DOWN
UP
ENTER
EP330Y
SPS58
LPS58
SPS59
LPS59
SPS62
LPS62
SPS63
LPS63
SPS66
LPS66
SPS67
LPS67
SPS70
LPS70
SPS71
LPS71
TITLE
FILL
MATTES/BKGD
SELECT
DOWNSTREAM KEYER
TYPE/POSITION
FILL
INT VIDEO
SELECT
HL20
ST13
ST16
ST18
ST24
ST48
ENABLE
EDITOR/GPI
SNAP SHOT
LEARN
RECALL
HOLD INPUT
USER PROGRAM
EDIT
LOCATION
LOCATION
EDGE
BORDER
SOFT
HL20R
12V
STL1
LT1
STL2
LT2
STL3
LT3
STL4
LT4
STL5
LT5
STL6
LT6
STL7
LT7
STL8
LT8
TITLE
NORMAL
INVERT
KEY INV
EXT KEY
CHROMA KEY
LUM KEY
MATTES/BKGD
MATTE COPY
DOWNSTREAM KEYER
BORDER
NORMAL
INVERT
KEY INV
EXT KEY
STL9
LT9
STL10
LT10
STL11
LT11
STL12
LT12
STL14
LT14
STL15
LT15
STL17
LT17
STL19
LT19
STL20
LT20
STL21
LT21
STL22
LT22
STL23
LT23
EFFECTS CONTROL
CRK
COL CRRCT
TITLE MASK
DSK MASK
SHIFT
SHIFT
PATTERN NUMBER
SET
STL26
LT26
STL27
LT27
STL28
LT28
STL29
LT29
STL31
LT31
STL32
LT32
COLOR CORRECTION
1
2
3
4
EFFECTS TRANSITION
EFFECT
DSK
FIELD
FRAME
REVERSE
MODE
DIRECT PATTERN
STL33
LT33
STL34
LT34
STL35
LT35
STL36
LT36
STL49
LT49
STL50
LT50
STL51
LT51
STL52
LT52
STL53
LT53
STL55
LT55
1
2
3
4
5
I
J
K
L
M
N
O
P

KY-309(4/5) BOARD
BOARD NO. 1-655-304-11
DFS-300
DFS-300P

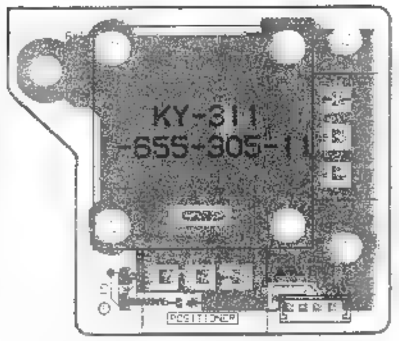
KY-309(5/5);LED


BACK LIGHT(LARGE) (GREEN:7mA)
10 BAR GRAPH ARRAY (GREEN:4.2mA)
7SEGMENTS LED (RED:4.2mA)
7SEGMENTS LED (RED:4.2mA)
BACK LIGHT(SMALL) (RED:4.2mA)
2/5 LOC(Z)
2/5 LED BUS
3/5 7SEG BUS
BACK LIGHT(LARGE) (GREEN)
TITLE
FROG BUS
D1 LD-701MG
BORD MAT
D2 LD-701MG
EFF MAT
D3 LD-701MG
MODIFY
MATTES/BKGD
COL BKGD
D4 LD-701MG
BORD MAT
D5 LD-701MG
EFF MAT
D6 LD-701MG
DSK MAT
D7 LD-701MG
DSK BORD
D8 LD-701MG
COL BKGD
DOWNSTREAM KEYER
WIDE BORD
D9 LD-701MG
NARW BORD
D10 LD-701MG
DROP BORD
D11 LD-701MG
DOUBLE
EFFECT
DSK VIDEO
D13 LD-701MG
DSK MAT
D14 LD-701MG
NONE
PATTERN
12V
LBL1
LBL2
LBL3
LBL4
LBL5
LBL6
LBL7
LBL8
LBL9
LBL10
LBL11
LBL12
LBL13
LBL14
LBL15


EFFECTS CONTROL
MODIFY
D16
LD-701MG
USER PGM
D17
LD-701MG
LBL16
LBL17
INT VIDEO
COL BKGD
D34
COL BAR
D35
GRID
D36
BLACK
D37
LBL34
LBL35
LBL36
LBL37
EFFECTS TRANSITION
EFFECT
D38
DSK
D39
NORM/REV
D40
LBL38
LBL39
LBL40
MODE
PATTERN
D43
TRANS
D44
USER PGM
D45
SNAP SHOT
D46
LBL43
LBL44
LBL45
LBL46
BACK LIGHT(SMALL)
(RED)
EFFECTS CONTROL
12V
F1
F2
F3
F4
GL8HD22
LBS18
LBS19
LBS20
LBS21
CLIP
HUE
OFFSET
C GAIN
LBS22
LBS23
LBS24
LBS25
ROT(X)
ROT(Y)
ROT(Z)
PERS
LBS26
LBS27
LBS28
LBS29
OFFSET
FORM
ROT(Z)
ANGLE
LEFT
RIGHT
TOP
BOTTOM
LOCATION
LOC(Z)
LBS51
10 BAR GRAPH ARRAY
(GREEN)
EFFECTS TRANSITION INDICATOR
D41
D42
LF1
LF20
7SEGMENTS LED
(RED)
SNAP SHOT
(2ND)
(1ST)
ND1
ND2
GL-9D03D
COM
DP
USER PROGRAM
(STATUS)
(EDIT)
ND3
ND4
TRANS RATE
(3RD)
(2ND)
(1ST)
ND5
ND6
ND7
PATTERN NUMBER
(4TH)
(3RD)
(2ND)
(1ST)
ND8
ND9
ND10
ND11

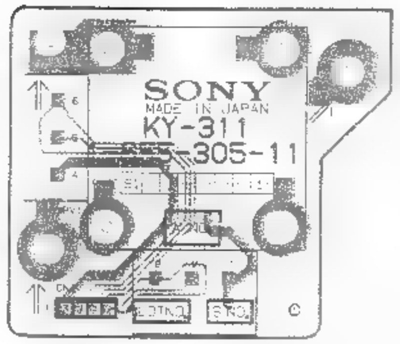
KY-309(5/5) BOARD
BOARD NO. 1-655-304-11
DFS-300
DFS-300P

KY-311; Positioner


KY-311
1-655-305-11
POSITIONER

KY-311 -A SIDE-

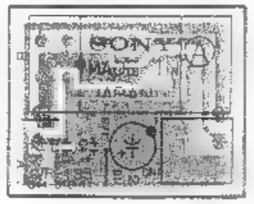
1-655-305-11
DFS-300/300P


SONY
MADE IN JAPAN
KY-311
1-655-305-11
LOT No.
S No.

KY-311 -B SIDE-

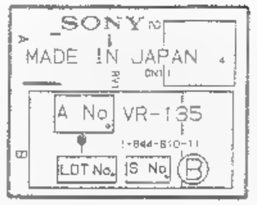
1-655-305-11
DFS-300/300P

VR-135; EDGE Control
; Title Control
; DSK (Downstream Keyer) Control



VR-135 -A SIDE-

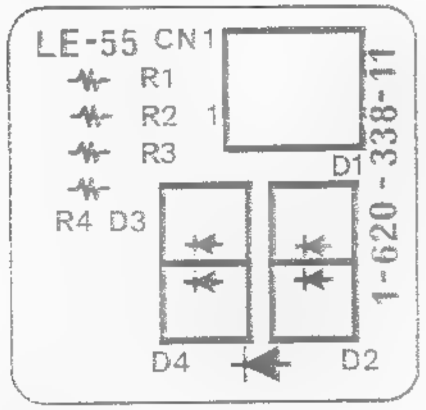
1-644-610-11
DFS-300/300P


SONY
MADE IN JAPAN
A No.
VR-135
1-644-610-11
LOT No.
S No.
B

VR-135 -B SIDE-

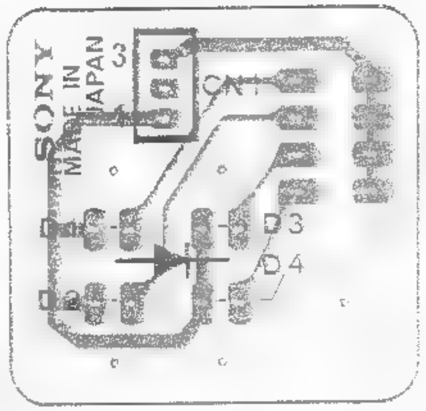
1-644-610-11
DFS-300/300P

LE-55; Power Indicator


LE-55
CN1
R1
R2
1
R3
R4
D3
D1
1-620-338-11
D4
D2

LE-55 -A SIDE-

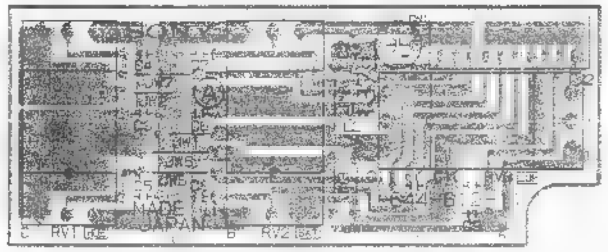
1-620-338-11
DFS-300/300P


SONY
MADE IN JAPAN
3
CN1
D3
D4
D2

LE-55 -B SIDE-

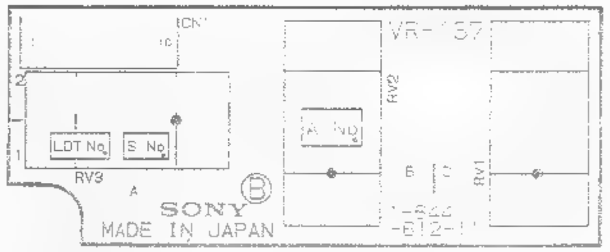
1-620-338-11
DFS-300/300P

VR-137; MATTES Control


SONY
MADE IN JAPAN
1-644-612-11
RV1
RV2

VR-137 -A SIDE-

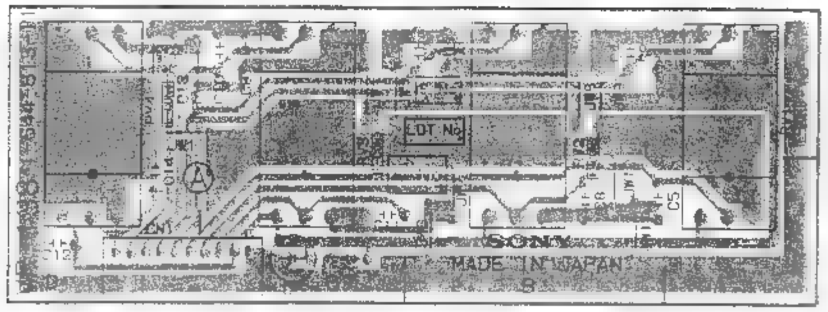
1-644-612-11
DFS-300/300P


CN1
VR-137
RV2
RV1
A No.
LOT No.
S No.
RV3
A
B
SONY
MADE IN JAPAN
1-644-612-11

VR-137 -B SIDE-

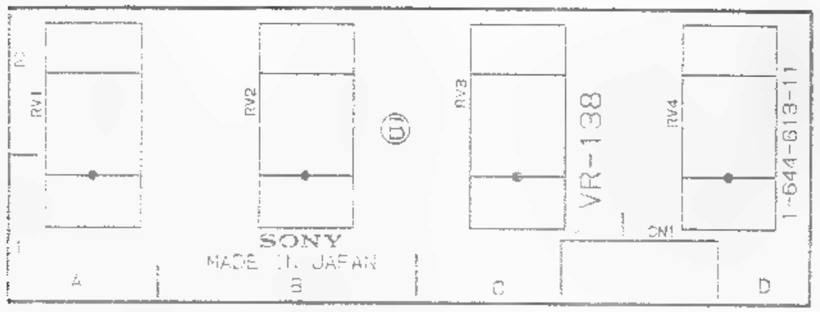
1-644-612-11
DFS-300/300P

VR-138; Effects Control


LOT No
D13
CN1
C5
C12
SONY
MADE IN JAPAN
B

VR-138 -A SIDE-

1-644-613-11
[illegible]

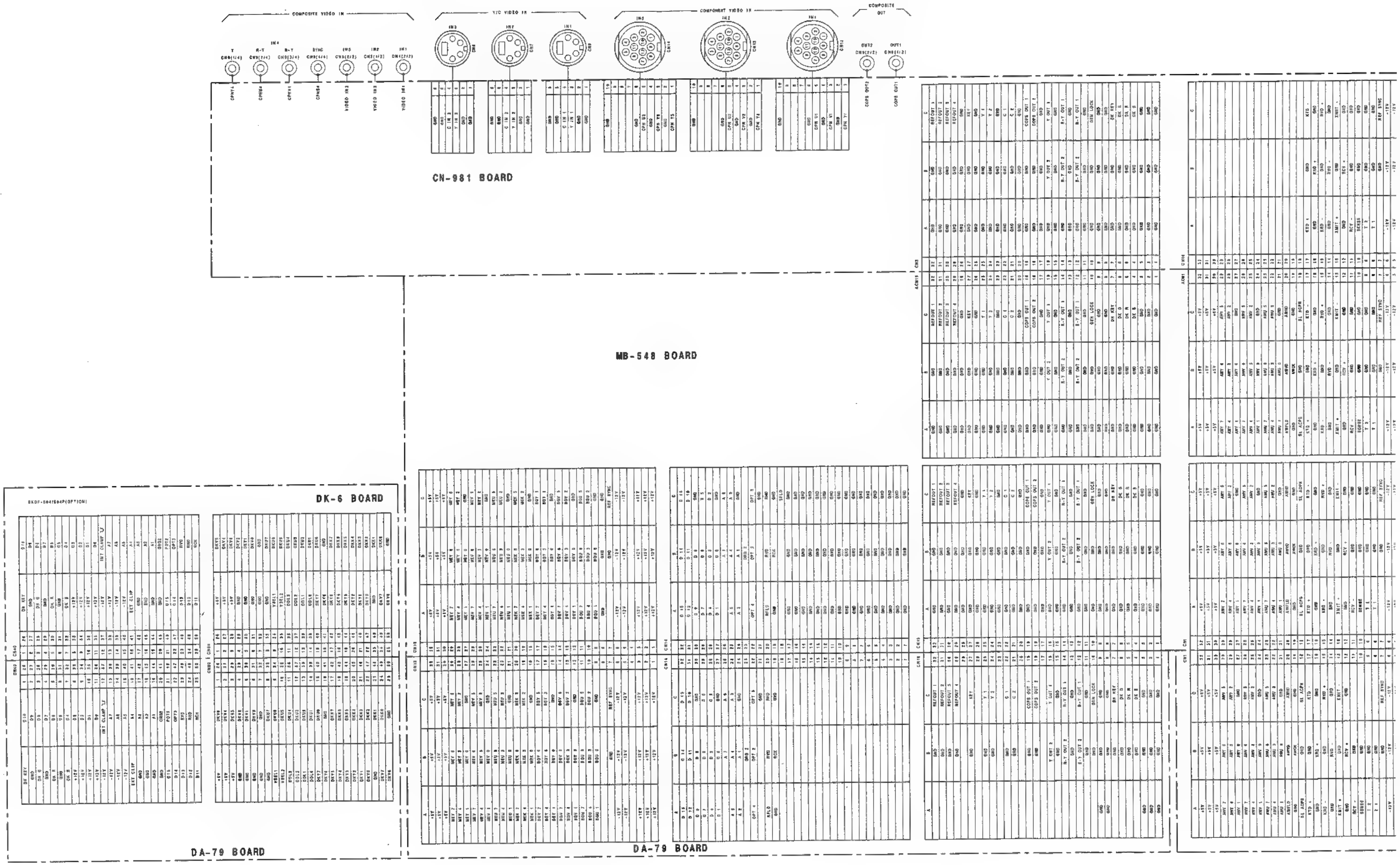

RV1
RV2
RV3
RV4
VR-138
1-644-613-11
CN1
SONY
MADE IN JAPAN
A
B
C
D

VR-138 -B SIDE-

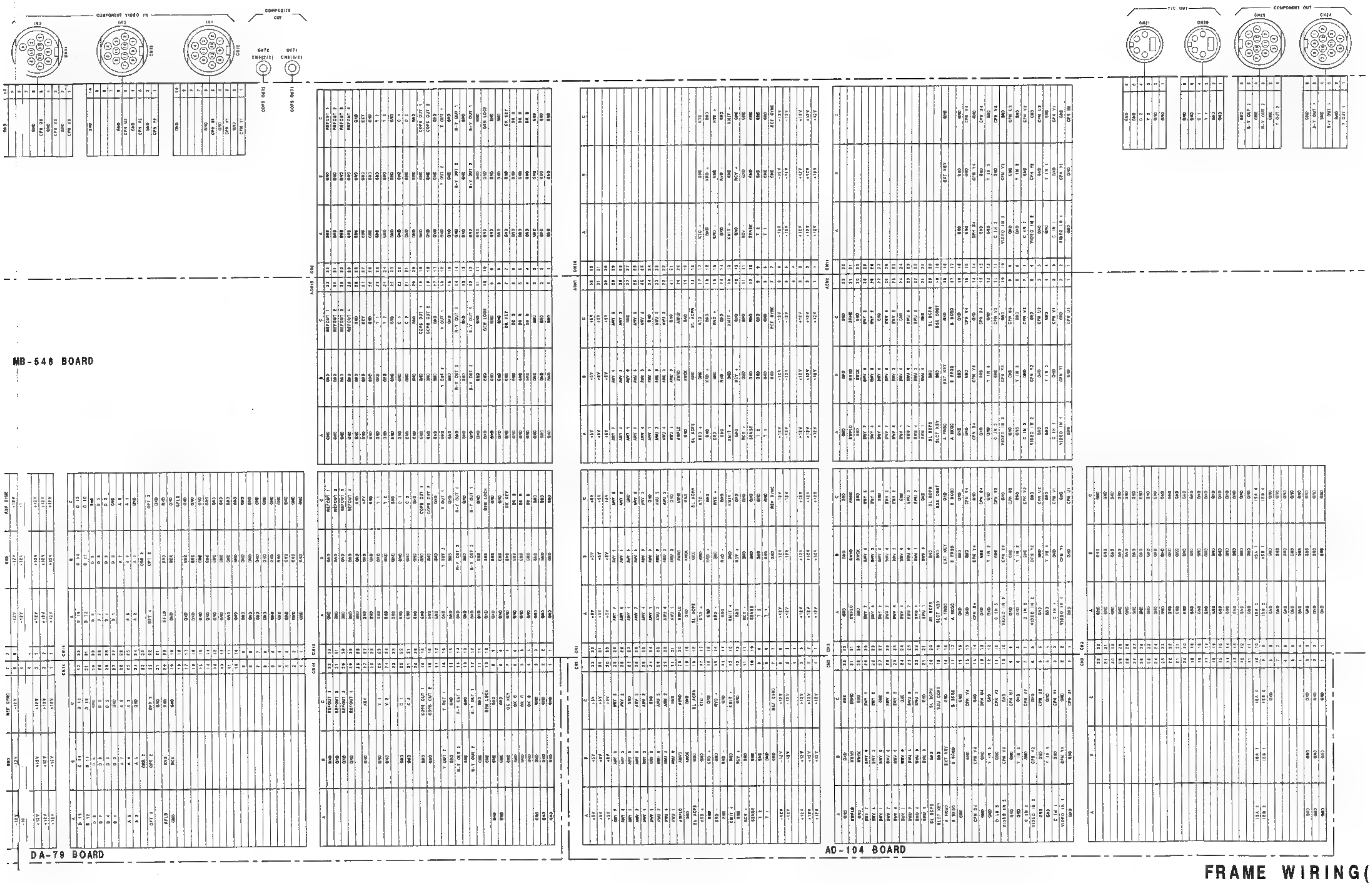
1-644-613-11
[illegible]

PROCESS UNIT FRAME WIRING(1/3)

FRAME WIRING(1/3) PROCESS UNIT


COMPOSITE VIDEO IN
Y/C VIDEO IN
COMPONENT VIDEO IN
COMPOSITE OUT
CN-981 BOARD
MB-548 BOARD
DK-6 BOARD
BKDF-504/504P(OPTION)
DA-79 BOARD
DA-79 BOARD

A | B | C | D | E | F | G | H

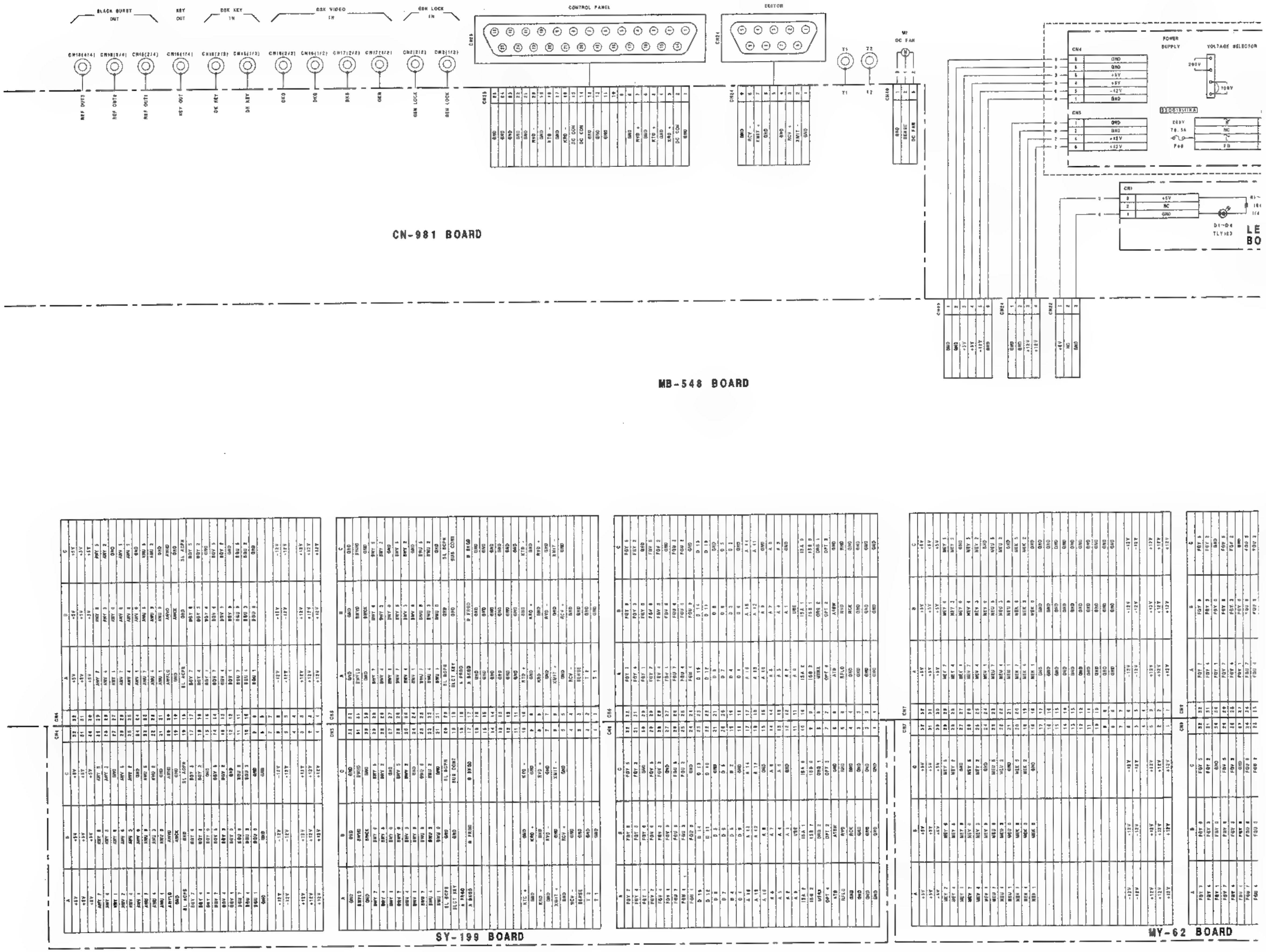

COMPONENT VIDEO IN
IN3
IN2
IN1
CN14
CN13
CN12
COMPOSITE OUT
OUT2
CN9(2/2)
OUT1
CN9(1/2)
COPS OUT2
COPS OUT1
Y/C OUT
CN21
CN20
COMPONENT OUT
CN23
CN22
MB-546 BOARD
DA-79 BOARD
AD-104 BOARD
1
2
3
4
5

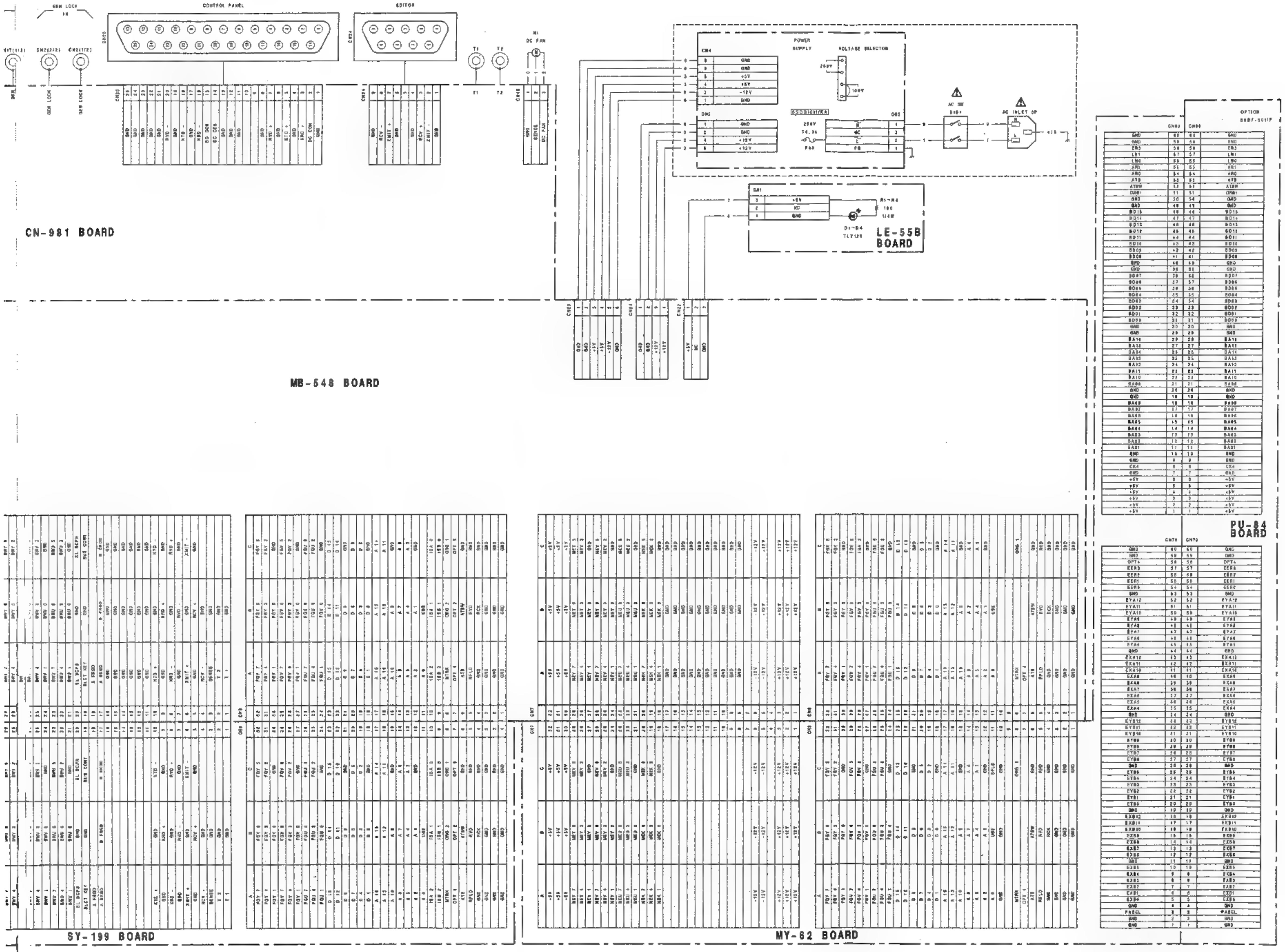
FRAME WIRING(1/3)

DFS-300
DFS-300P

PROCESS UNIT FRAME WIRING(2/3)

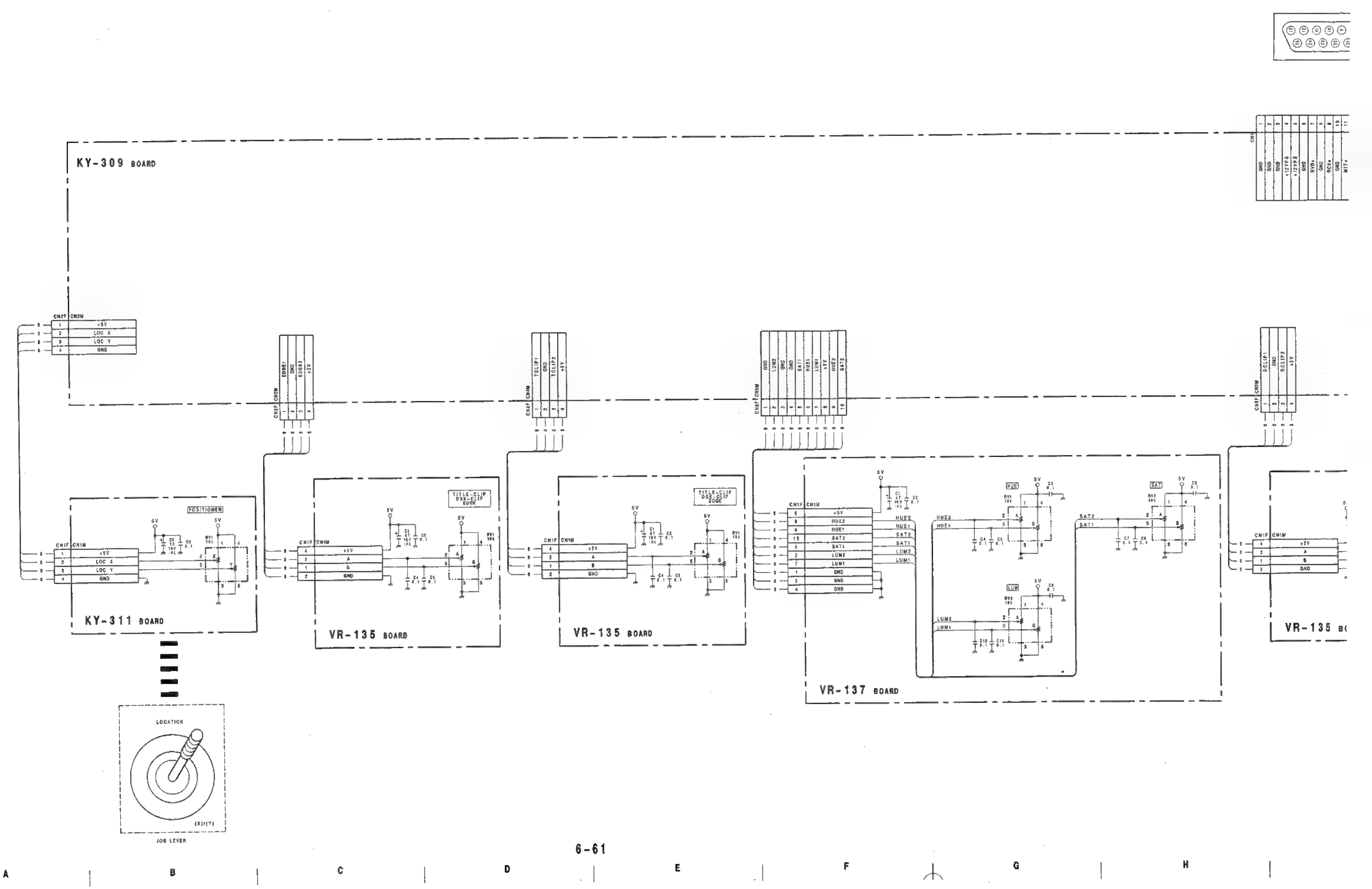
FRAME WIRING(2/3) PROCESS UNIT

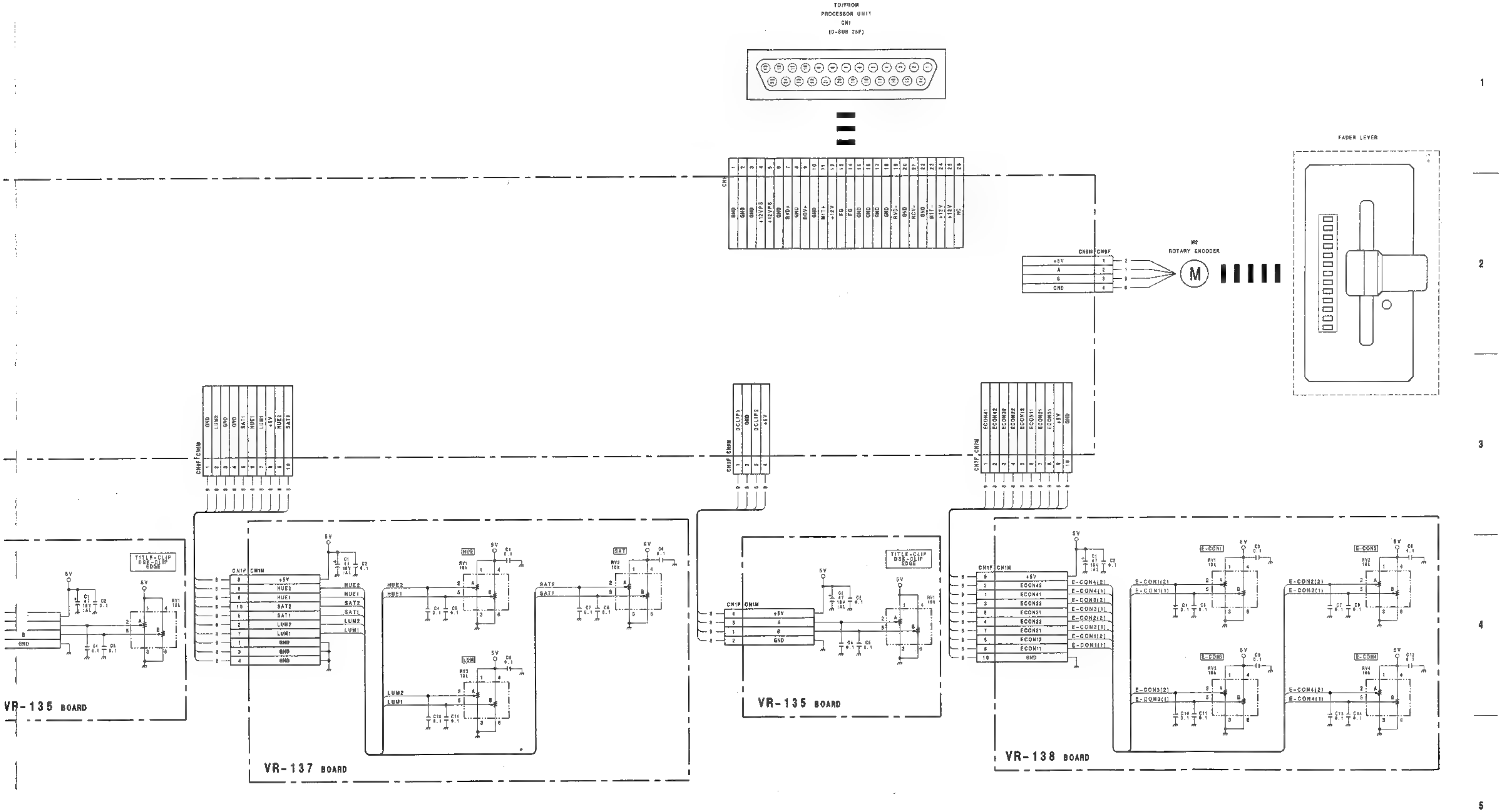

BLACK BURST OUT
KEY OUT
DSK KEY IN
DSK VIDEO IN
GEN LOCK IN
CONTROL PANEL
EDITOR
M1 DC FAN
T1
T2
POWER SUPPLY
VOLTAGE SELECTOR
CN-981 BOARD
MB-548 BOARD
SY-199 BOARD
MY-62 BOARD


GEN LOCK
CONTROL PANEL
EDITOR
DC FAN
POWER SUPPLY
VOLTAGE SELECTOR
AC SW
AC INLET 3P
OPTION
CN-981 BOARD
LE-55B BOARD
MB-548 BOARD
PU-84 BOARD
SY-199 BOARD
MY-62 BOARD
1
2
3
4
5
E
F
G
H
I
J
K
L

FRAME WIRING(2/3)

DFS-300
DFS-300P


KY-309 BOARD
CN1
GND
GND
GND
+12VPS
+12VPS
GND
RVD+
GND
RCV+
GND
MIT+
CN2F CN2M
+5V
LOC X
LOC Y
GND
CN3F CN3M
EDGE1
GND
EDGE2
+5V
CN4F CN4M
TCLIP1
GND
TCLIP2
+5V
CN5F CN5M
GND
LUM2
GND
GND
SAT1
HUE1
LUM1
+5V
HUE2
SAT2
CN6F CN6M
DCLIP1
GND
DCLIP2
+5V
KY-311 BOARD
POSITIONER
CN1F CN1M
+5V
LOC X
LOC Y
GND
5V
C1 10 16V TAL
C2 0.1
RV1 10K
X
Y
LOCATION
(X)/(Y)
JOG LEVER
VR-135 BOARD
TITLE-CLIP DSK-CLIP EDGE
CN1F CN1M
+5V
A
B
GND
C1 47 16V TAL
C2 0.1
C4 0.1
C5 0.1
RV1 10k
VR-135 BOARD
VR-137 BOARD
CN1F CN1M
+5V
HUE2
HUE1
SAT2
SAT1
LUM2
LUM1
GND
GND
GND
HUE
SAT
LUM
RV1 10k
RV2 10k
RV3 10k
C3 0.1
C4 0.1
C5 0.1
C6 0.1
C7 0.1
C8 0.1
C9 0.1
C10 0.1
C11 0.1
5V
VR-135 BO
A
B
C
D
E
F
G
H


TO/FROM
PROCESSOR UNIT
CN1
(D-SUB 25P)
CN1
1 GND
2 GND
3 GND
4 +12VPS
5 +12VPS
6 GND
7 RVD+
8 GND
9 RCV+
10 GND
11 MIT+
12 +12V
13 FG
14 FG
15 GND
16 GND
17 GND
18 GND
19 RVD-
20 GND
21 RCV-
22 GND
23 MIT-
24 +12V
25 +12V
26 NC
CN9M CN9F
+5V 1
A 2
B 3
GND 4
M2
ROTARY ENCODER
M
FADER LEVER
CN8F CN8M
1 GND
2 LUM2
3 GND
4 GND
5 SAT1
6 HUE1
7 LUM1
8 +5V
9 HUE2
10 SAT2
CN5F CN5M
1 DCLIP1
2 GND
3 DCLIP2
4 +5V
CN7F CN7M
1 ECON41
2 ECON42
3 ECON32
4 ECON22
5 ECON12
6 ECON11
7 ECON21
8 ECON31
9 +5V
10 GND
TITLE-CLIP
DSK-CLIP
EDGE
5V
C1
47
16V
:AL
C2
0.1
RV1
10k
GND
VR-135 BOARD
CN1F CN1M
8 +5V
9 HUE2
6 HUE1
10 SAT2
5 SAT1
2 LUM2
7 LUM1
1 GND
3 GND
4 GND
HUE2
HUE1
SAT2
SAT1
LUM2
LUM1
HUE
RV1
10k
C3
0.1
C4
0.1
C5
0.1
SAT
RV2
10k
C6
0.1
C7
0.1
C8
0.1
LUM
RV3
10k
C9
0.1
C10
0.1
C11
0.1
VR-137 BOARD
CN1F CN1M
4 +5V
3 A
1 B
2 GND
C4
0.1
C5
0.1
VR-135 BOARD
CN1F CN1M
9 +5V
2 ECON42
1 ECON41
3 ECON32
8 ECON31
4 ECON22
7 ECON21
5 ECON12
6 ECON11
10 GND
E-CON4(2)
E-CON4(1)
E-CON3(2)
E-CON3(1)
E-CON2(2)
E-CON2(1)
E-CON1(2)
E-CON1(1)
E-CON1
E-CON2
E-CON3
E-CON4
RV1
10k
RV2
10k
RV3
10k
RV4
10k
VR-138 BOARD
1
2
3
4
5

FRAME WIRING(3/3)

DFS-300
DFS-300P

E
F
G
H
I
J
K
L

SECTION 7
SEMICONDUCTOR PIN ASSIGNMENTS

ここに記載されているIC、トランジスタ、ダイオードは、それぞれの機能を等価的に表したものです。したがって互換性を表すものではありません。(互換性のない型名が併記されている事もあります。)部品を交換するときには 、SPARE PARTSの章を参照してください。

ICs, transistors, and diodes of which functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

DIODE	PAGE
1S2835	7-2
1S2836	7-2
1SS119	7-2
1SS123	7-2
1SS226	7-2
CL-150PG-CD	7-2
CL-150Y-CD	7-2
GL8HD22	7-2
GL-9D03D	7-2
HDSP-4850	7-2
KV1851A-1	7-2
LD-701MG	7-2
RD ? ?M-B	7-2
RD ? ?M-B ?	7-2
TLY123	7-2

TRANSISTOR	PAGE
2SA1162G	7-2
2SA1462	7-2
2SA812	7-2
2SA952	7-2
2SC1623	7-2
2SC2757	7-2
2SC3545	7-2
2SK508	7-2
2SK94-X4	7-2

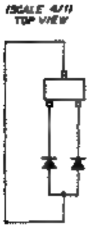
IC	PAGE
74AC00SJ	7-3
74AC00SJX	7-3
74AC138SJ	7-3
74AC138SJX	7-3
74AC157SJX	7-3
74AC175SJ	7-3
74AC374SJ	7-3
74AC374SJX	7-3
74ACT399SJ	7-3
AM26LS31PC	7-4
AM26LS32PC	7-4
CX22017	7-4
CXA1106M	7-4
CXA1260Q-Z	7-4
CXA1451M	7-5
CXD1095Q	7-5
CXD1175AM	7-6
CXD1216M	7-6
CXD1217M	7-8
CXD2105AQ	7-7
CXD8033Q	7-11
CXD8264Q	7-11
CXD8266Q	7-9
CXD8267Q	7-12
CXD8871Q	7-10
CXD8872Q	7-14
CXD8878Q	7-15
CXD8879Q	7-13
CXD8925Q	7-12
CXD8927Q	7-16
CXK1203Q	7-16
CXK1206AM	7-17
CXK48324Q	7-17
CXK58257AM-12LL	7-18
CXK58267AM-10L	7-19
CXK5864CM-10LL	7-20
CXQ70116P-8	7-18
CXQ70116P-10	7-18
CXQ71051P	7-20
CXQ71054P	7-19
CY7C194-25VC	7-21
HD14053BFP	7-21
IDT6116SA25SO	7-21
LM1881M	7-20
LM311M	7-21
LM311PS	7-21
LM358PS	7-22
LT1252CS8	7-22
M27C4001-12F1	7-22
M51271FP	7-23
MAX691CPE	7-22
MC14052BF	7-23
MC14053BF	7-21
MC34050ML	7-23
MC74HC113F	7-24
MC74HC163AF	7-23
NJM082M	7-24
NJM13700M	7-24
NJM2233BM	7-24
NJM2234M	7-24
NJM2235M	7-24
N5M2245M	7-24
NJM2246M	7-24
NJM360M	7-24
NJM7805FA	7-25
NJM7809FA	7-25
NJM78L05UA	7-25
NJM78M09FA	7-25
NJM7905FA	7-25
NJM7909FA	7-25
SC7S00F	7-25
SI-3052V	7-25
SI-3522V	7-25
SN74ALS374ANS	7-28
SN74HC00ANS	7-3
SN74HC02ANS	7-25
SN74HC03NS	7-25
SN74HC04ANS	7-25
SN74HC08ANS	7-25
SN74HC109ANS	7-26
SN74HC10ANS	7-26
SN74HC11ANS	7-26
SN74HC132ANS	7-26
SN74HC138ANS	7-3
SN74HC139ANS	7-26
SN74HC153ANS	7-26
SN74HC157ANS	7-3
SN74HC163ANS	7-23
SN74HC164ANS	7-26
SN74HC174ANS	7-27
SN74HC175ANS	7-3
SN74HC20ANS	7-27
SN74HC244ANS	7-27
SN74HC245ANS	7-27
SN74HC32ANS	7-27
SN74HC365ANS	7-27
SN74HC373ANS	7-28
SN74HC374ANS	7-3
SN74HC541ANS	7-28
SN74HC74ANS	7-28
SN74HCT374ANS	7-3
SN74LS123NS	7-28
SN74LS221NS	7-28
SN74LS247NS	7-29
TC4584BF	7-29
TC4S66F	7-29
TC7S00F	7-25
TC74HC221AF	7-29
TC74HC375AF	7-29
TC74VHC244F	7-27
TC74VHC374F	7-3
TC74VHC541F	7-28
TD62083F	7-30
TL082CPS	7-24
TL7705CPS-B	7-30
TMS27C210A-12JL	7-29
TMS27C512-15JL	7-30
UPC1037HA	7-32
UPC358G2	7-22
UPD42101G-3	7-33
UPD4701AC	7-30
UPD7004C	7-32
UPD70320GJ-8-5BG	7-31
UPD71059C	7-32

等価回路はICメーカーのData Bookに従いました。

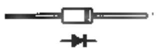
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

DIODE, TRANSISTOR

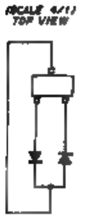
DIODE


(SCALE 4/1) TOP VIEW

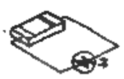
1S2835
1S2836



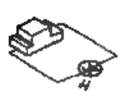
1SS119


(SCALE 4/1) TOP VIEW

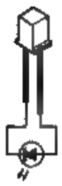
1SS123
1SS226



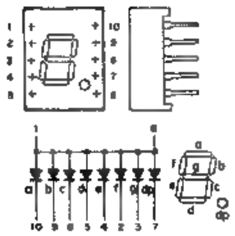
CL-150PG-CD ; GREEN



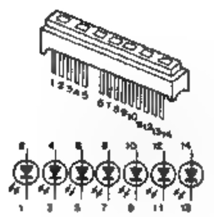
CL-150Y-CD ; AMBER



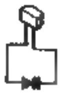
GL8HD22 ; RED


1
2
3
4
5
10
9
8
7
6
a
b
c
d
e
f
g
dp
10
9
8
5
4
2
3
7

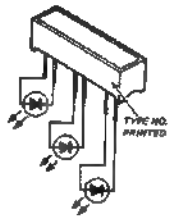
GL-9D03D ; YELLOW



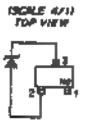
HDSP-4850



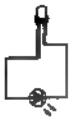
KV1851A-1


TYPE NO. PRINTED

LD-701MG ; GREEN

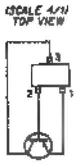

(SCALE 4/1) TOP VIEW
1
2
3

RD ? ?M-B
RD ? ?M-B ?

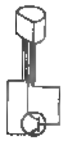


TLY123 ; GREEN

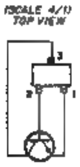
TRANSISTOR


(SCALE 4/1) TOP VIEW
1
2
3

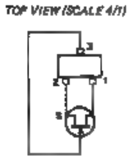
2SA1162G
2SA1462
2SA812



2SA952


(SCALE 4/1) TOP VIEW
1
2
3

2SC1623
2SC2757
2SC3545

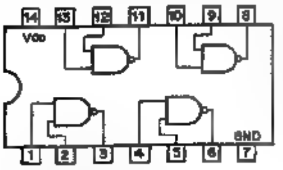

TOP VIEW (SCALE 4/1)
1
2
3

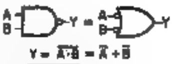
2SK508
2SK94-X4

IC

74AC00SJ (NS) FLAT PACKAGE
74AC00SJX (NS) FLAT PACKAGE
SN74HC00ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATES
—TOP VIEW—


14
13
12
11
10
9
8
Vdd
GND
1
2
3
4
5
6
7



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

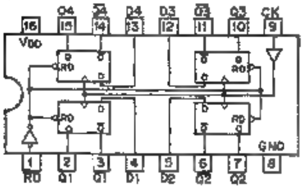
0; LOW LEVEL
1; HIGH LEVEL

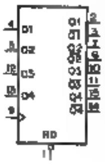
NOTE :

TYPE	Vdd
TC74AC00 TYPE TC74VHC00	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

74AC175SJ (NS) FLAT PACKAGE
SN74HC175ANS (TI) FLAT PACKAGE

C-MOS QUAD D-TYPE FLIP-FLOPS WITH RESET
—TOP VIEW—


Q4
Q̄4
D4
D3
Q̄3
Q3
CK
16
15
14
13
12
11
10
9
Vdd
RD
GND
1
2
3
4
5
6
7
8
RD
Q1
Q̄1
D1
D2
Q̄2
Q2


4 D1
5 D2
12 D3
13 D4
9
Q1 2
Q̄1 3
Q2 7
Q̄2 6
Q3 10
Q̄3 11
Q4 15
Q̄4 14
RD
1

RD	CK	D	Q	Q̄
0	X	X	0	1
1	⌠	1	1	0
1	⌠	0	0	1
1	0	X	Qo	Q̄o

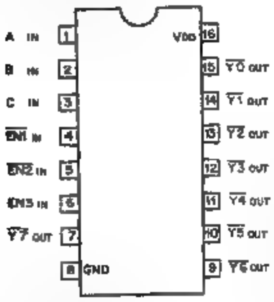
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
Qo ; NO CHANGE
Q̄o ; NO CHANGE

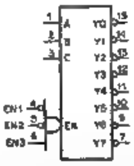
NOTE :

TYPE	Vdd
AC TYPE	+2 to +5.5 V
74ACT175 TYPE	+4.5V to 5.5 V
OTHER TYPES	+2 to +6 V

74AC138SJ (NS) FLAT PACKAGE
74AC138SJX (NS) FLAT PACKAGE
SN74HC138ANS (TI) FLAT PACKAGE

C-MOS 3-TO-8 LINE DECODER／DEMULTIPLEXER
—TOP VIEW—


A IN 1
B IN 2
C IN 3
EN̄1 IN 4
EN̄2 IN 5
EN3 IN 6
Ȳ7 OUT 7
8 GND
Vdd 16
15 Ȳ0 OUT
14 Ȳ1 OUT
13 Ȳ2 OUT
12 Ȳ3 OUT
11 Ȳ4 OUT
10 Ȳ5 OUT
9 Ȳ6 OUT


1 A
2 B
3 C
EN1 4
EN2 5
EN3 6
EN
Y0 15
Y1 14
Y2 13
Y3 12
Y4 11
Y5 10
Y6 9
Y7 7

INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

EN = EN̄1 · EN̄2 · EN3

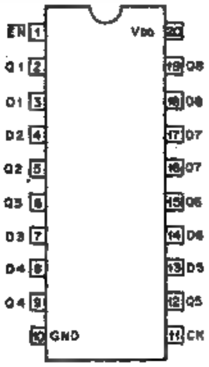
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

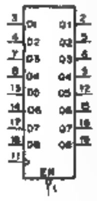
NOTE :

TYPE	Vdd
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

74AC374SJ (NS) FLAT PACKAGE
74AC374SJX (NS) FLAT PACKAGE
SN74HC374ANS (TI) FLAT PACKAGE
SN74HCT374ANS (TI) FLAT PACKAGE
TC74VHC374F (TOSHIBA) FLAT PACKAGE

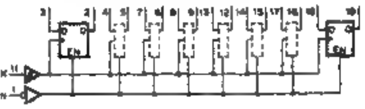
C-MOS 3-STATE OCTAL D-TYPE FLIP-FLOP
—TOP VIEW—


EN̄ 1
Q1 2
D1 3
D2 4
Q2 5
Q3 6
D3 7
D4 8
Q4 9
10 GND
Vdd 20
19 Q8
18 D8
17 D7
16 Q7
15 Q6
14 D6
13 D5
12 Q5
11 CK


3 D1
4 D2
7 D3
8 D4
13 D5
14 D6
17 D7
18 D8
11
Q1 2
Q2 5
Q3 6
Q4 9
Q5 12
Q6 15
Q7 16
Q8 19
EN
1

INPUTS			OUT
EN	D	CK	Q
0	1	⌠	1
0	0	⌠	0
0	X	0	Qo
1	X	X	Hi-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
Hi-Z ; HIGH IMPEDANCE

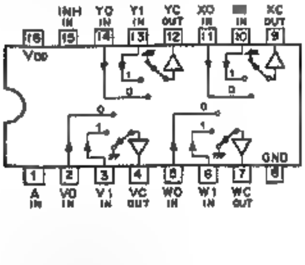

3
2
4
5
7
6
8
9
13
12
14
15
17
16
18
19
EN
CK 11
EN 1

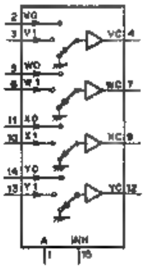
NOTE :

TYPE	Vdd
74AC/74HC	+2 to +6V
74ACT/74BCT/74FCT /74HCT	+5V
74VHC	+2 to +5.5V

74AC157SJX (NS) FLAT PACKAGE
SN74HC157ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR／MULTIPLEXER
—TOP VIEW—


INH IN
Y0 IN
Y1 IN
YC OUT
X0 IN
X1 IN
XC OUT
16
15
14
13
12
11
10
9
Vdd
GND
1
2
3
4
5
6
7
8
A IN
V0 IN
V1 IN
VC OUT
W0 IN
W1 IN
WC OUT


2 V0
3 V1
VC 4
5 W0
6 W1
WC 7
11 X0
10 X1
XC 9
14 Y0
13 Y1
YC 12
A
INH
1
15

NOTE :

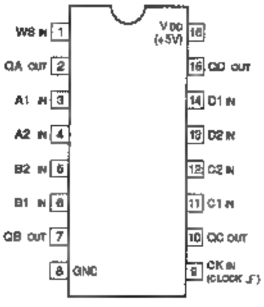
TYPE	Vdd
74ACT／74FCT	+5V
TC74AC157P TC74AC157	+2 to +5.5V
TC40H	+2 to +6V
OTHER TYPES	+2 to +6V

CONT. IN		ON CHANNEL
INH	A	
■	0	0
0	1	1
1	X	GND

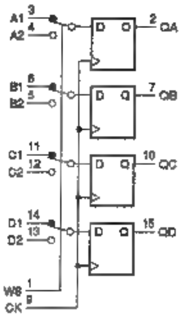
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

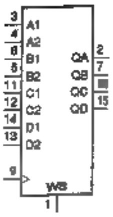
74ACT399SJ (NS) FLATPACKAGE

C-MOS QUAD 2-PORT REGISTER
—TOP VIEW—


WS IN 1
QA OUT 2
A1 IN 3
A2 IN 4
B2 IN 5
B1 IN 6
QB OUT 7
8 GND
Vdd (+5V) 16
15 QD OUT
14 D1 IN
13 D2 IN
12 C2 IN
11 C1 IN
10 QC OUT
9 CK IN (CLOCK ⌠)

WS : WORD SELECT


A1 3
A2 4
D Q
2 QA
B1 6
B2 5
7 QB
C1 11
C2 12
10 QC
D1 14
D2 13
15 QD
WS 1
CK 9

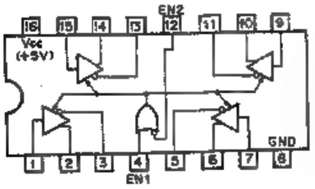

3 A1
4 A2
6 B1
5 B2
11 C1
12 C2
14 D1
13 D2
9
QA 2
QB 7
QC 10
QD 15
WS
1

INPUTS		OUTPUTS			
WS	CK	QA	QB	QC	QD
0	⌠	A1	B1	C1	D1
1	⌠	A2	■	C2	D2
■	0	QA0	QB0	QC0	QD0

1 ; HIGH LEVEL
0 ; LOW LEVEL
X ; DONT CARE

AM26LS31PC (ADVANCED MICRO DEVICES)

HIGH SPEED DIFFERENTIAL LINE DRIVER
—TOP VIEW—


EN2
Vcc (+5V)
GND
EN1
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8

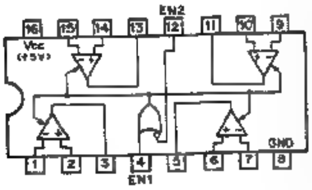
FUNCTION TABLE

EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

0 ; LOW LEVEL
1 ; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

AM26LS32PC (ADVANCED MICRO DEVICES)

HIGH SPEED DIFFERENTIAL LINE RECEIVER
—TOP VIEW—


EN2
Vcc (+5V)
GND
EN1
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8

FUNCTION TABLE

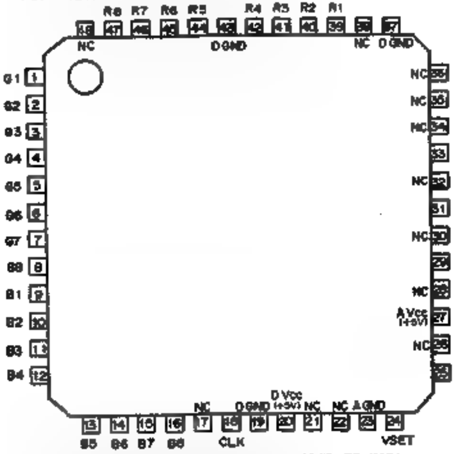
EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

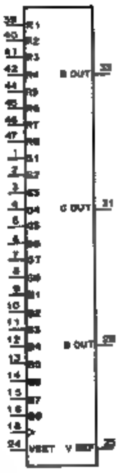
0 ; LOW LEVEL
1 ; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

	SENSE	INPUT VOLT
C32/LS32	± 200mV	± 7V
LS33	± 500mV	± 15V

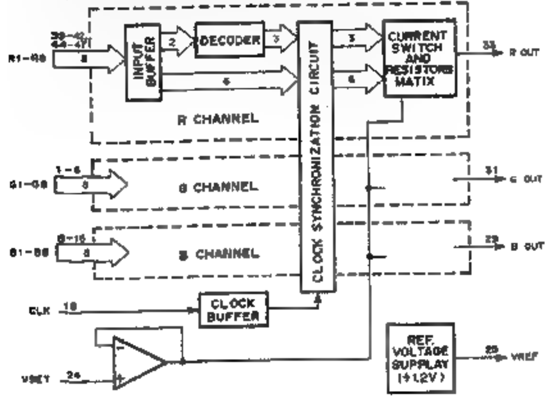
CXA1260Q-Z (SONY) FLAT PACKAGE

8-BIT 35MHz 3-CHANNEL D/A CONVERTER
—TOP VIEW—


R8 R7 R6 R5 R4 R3 R2 R1
48 47 46 45 44 43 42 41 40 39 38 37
NC
DGND
NC DGND
G1
G2
G3
G4
G5
G6
G7
G8
B1
B2
B3
B4
NC 36
NC 35
NC 34
33 R out
NC 32
31 G out
NC 30
29 B out
NC 28
A Vcc (+5V) 27
NC 26
25 V REF
NC
DGND
D Vcc (+5V)
NC
NC AGND
13 14 15 16 17 18 19 20 21 22 23 24
B5 B6 B7 B8
CLK
VSET

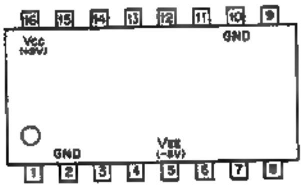

R1
R2
R3
R4
R5
R6
R7
R8
G1
G2
G3
G4
G5
G6
G7
G8
B1
B2
B3
B4
B5
B6
B7
B8
R OUT 33
G OUT 31
B OUT 29
VSET
V REF 25
24

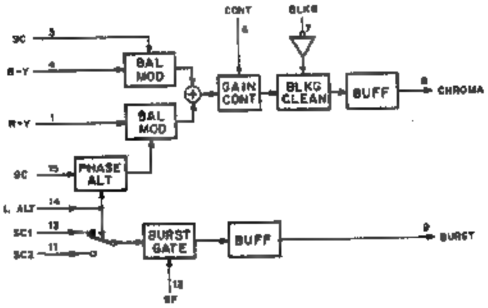
B1-B8 ; B CHANNEL DIGITAL INPUTS (LSB TO MSB)
B OUT ; B CHANNEL ANALOG OUTPUT
CLK ; D/A CONVERSION CLOCK
G1-G8 ; G CHANNEL DIGITAL INPUTS (LSB TO MSB)
G OUT ; G CHANNEL ANALOG OUTPUT
R1-R8 ; R CHANNEL DIGITAL INPUTS (LSB TO MSB)
R OUT ; R CHANNEL ANALOG OUTPUT
VREF ; REFERENCE VOLTAGE OUTPUT, +1.2V TYP.
VSET ; BIAS INPUT (VSET = +0.67V ; D/A OUT = 1Vp-p)


R1-R8
38-42
44-47
8
INPUT BUFFER
2
DECODER
3
6
CLOCK SYNCHRONIZATION CIRCUIT
CURRENT SWITCH AND RESISTORS MATIX
33
R OUT
R CHANNEL
G1-G8
1-8
G CHANNEL
31
G OUT
B1-B8
9-16
B CHANNEL
29
B OUT
CLK
18
CLOCK BUFFER
VSET
24
REF. VOLTAGE SUPPLAY (+1.2V)
25
VREF

CX22017 (SONY)

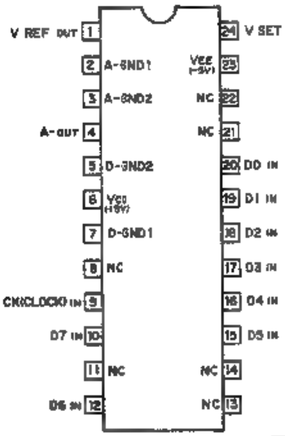
VIDEO SIGNAL PROCESSOR
—TOP VIEW—

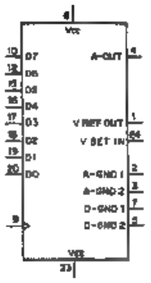

16
15
14
13
12
11
10
9
Vcc (+5V)
GND
GND
VEE (-5V)
1
2
3
4
5
6
7
8

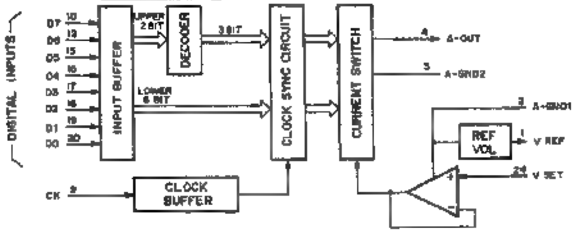

CONT
BLKG
SC
B-Y
R-Y
BAL MOD
BAL MOD
GAIN CONT
BLKG CLEAN
BUFF
CHROMA
SC
PHASE ALT
L ALT
SC1
SC2
BURST GATE
BUFF
BURST
BF

CXA1106M (SONY) FLAT PACKAGE

8-BIT D/A CONVERTER (TTL INPUT)
—TOP VIEW—

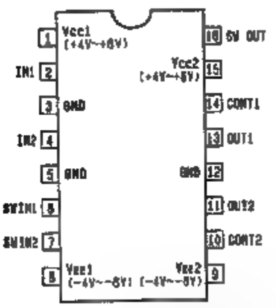

V REF OUT 1
2 A-GND1
3 A-GND2
A-OUT 4
5 D-GND2
6 Vcc (+5V)
7 D-GND1
8 NC
CK(CLOCK) IN 9
D7 IN 10
11 NC
D6 IN 12
24 V SET IN
VEE (-5V) 23
NC 22
NC 21
20 D0 IN
19 D1 IN
18 D2 IN
17 D3 IN
16 D4 IN
15 D5 IN
NC 14
NC 13

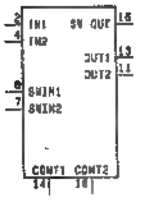

Vcc
D7
D6
D5
D4
D3
D2
D1
D0
A-OUT
V REF OUT
V SET IN
A-GND1
A-GND2
D-GND1
D-GND2
VEE


DIGITAL INPUTS
D7
D6
D5
D4
D3
D2
D1
D0
INPUT BUFFER
UPPER 2 BIT
DECODER
3 BIT
LOWER 6 BIT
CLOCK SYNC CIRCUIT
CURRENT SWITCH
A-OUT
A-GND2
A-GND1
REF VOL
V REF
V SET
CK
CLOCK BUFFER

CXA1451M (SONY)

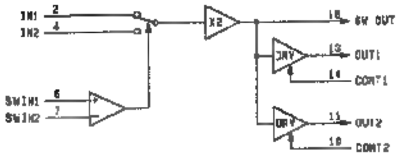
WIDEBAND VIDEO SWITCH
—TOP VIEW—


Vcc1 (+4V~+6V)
IN1
GND
IN2
GND
SWIN1
SWIN2
Vee1 (-4V~-6V)
SW OUT
Vcc2 (+4V~+6V)
CONT1
OUT1
GND
OUT2
CONT2
Vee2 (-4V~-6V)


IN1
IN2
SW OUT
OUT1
OUT2
SWIN1
SWIN2
CONT1
CONT2

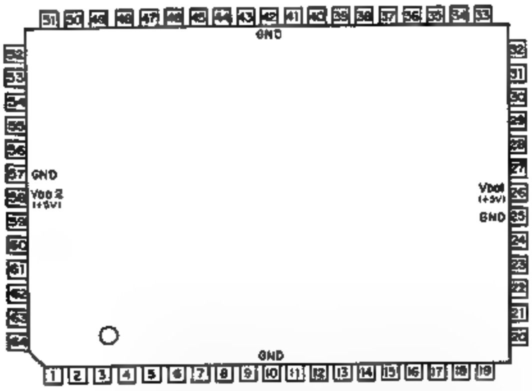
INPUT
CONT1, 2 : POWER SAVE CONTROL PIN OF DRV.1 AND DRV.2
INT1, 2 : 1/2-CHANNEL INPUT PIN
SWIN1, 2 : IN1/IN2 PINS SWITCH CONTROL PIN

OUTPUT
OUT1, 2 : OUTPUT PIN OF DRV.1/2
SWOUT : OUTPUTS IN1 PIN OR IN2 PIN WHICH HAS BEEN SELECTED BY SWITCH.

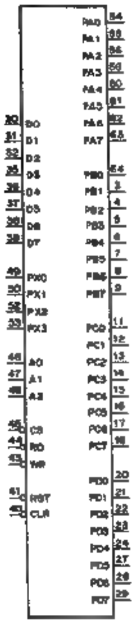

IN1
IN2
SWIN1
SWIN2
X2
SW OUT
DRV
OUT1
CONT1
DRV
OUT2
CONT2

CXD1095Q (SONY) FLAT PACKAGE

C-MOS I/O PORT EXPANDER
—TOP VIEW—


GND
GND
Vdd2 (+5V)
Vdd1 (+5V)
GND
GND

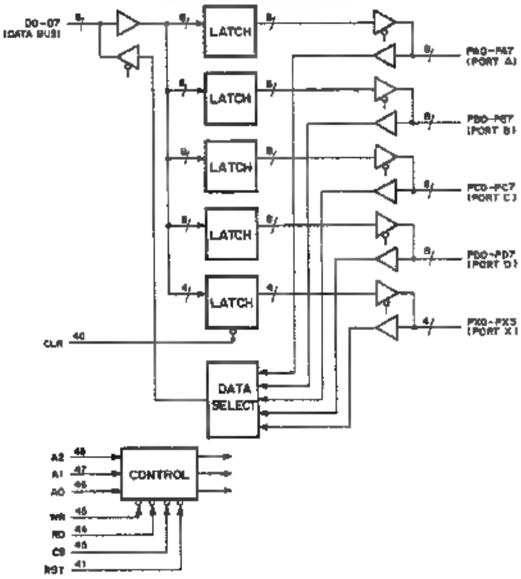
PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	○	○	PC6	33			NC	49	○	○	PX0
2			NC	18	○	○	PC7	34			NC	50	○	○	PX1
3	○	○	PB1	19			NC	35	○	○	D3	51			NC
4	○	○	PB2	20	○	○	PD0	36	○	○	D4	52	○	○	PX2
5	○	○	PB3	21	○	○	PD1	37	○	○	D5	53	○	○	PX3
6	○	○	PB4	22	○	○	PD2	38	○	○	D6	54	○	○	PA0
7	○	○	PB5	23	○	○	PD3	39	○	○	D7	55	○	○	PA1
8	○	○	PB6	24	○	○	PD4	40	○		CLR	56	○	○	PA2
9	○	○	[illegible]	25			GND	41	[illegible]		RST	57			GND
10			GND	26	○		VDD (+5V)	42			GND	58	○		VDD (+5V)
11	○	○	PC0	27	○	○	PD5	43	○		WR	59	○	○	PA3
12	○	○	PC1	28	○	○	PD6	44	○		RD	60	○	○	PA4
13	○	○	PC2	29	○	○	PD7	45	○		CS	61	○	○	PA5
14	○	○	PC3	30	○	○	D0	46	○		A0	62	○	○	PA6
15	○	○	PC4	31	○	○	D1	47	○		A1	63	○	○	PA7
16	○	○	PC5	32	○	○	D2	48	○		A2	64	○	○	PB0


D0
D1
D2
D3
D4
D5
D6
D7
PX0
PX1
PX2
PX3
A0
A1
A2
CS
RD
WR
RST
CLR
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7

CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A → DATA BUS
0	0	1	0	0	1	PORT B → DATA BUS
0	0	1	0	1	0	PORT C → DATA BUS
0	0	1	0	1	1	PORT D → DATA BUS
0	0	1	1	0	[illegible]	PORT X → DATA BUS
0	0	1	1	0	1	——
0	0	1	1	1	0	——
0	0	1	1	1	1	——
0	1	0	0	0	0	DATA BUS → PORT A
0	1	0	0	0	1	DATA BUS → PORT [illegible]
0	1	0	0	1	0	DATA BUS → PORT C
0	1	0	0	1	1	DATA BUS → PORT D
0	1	0	1	0	0	DATA BUS → PORT X
0	1	0	1	0	1	——
0	1	0	1	1	0	DATA BUS → CTL REG.1
0	1	0	1	1	1	DATA BUS → CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI-Z

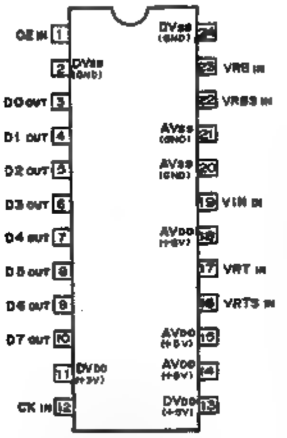
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z , HIGH IMPEDANCE

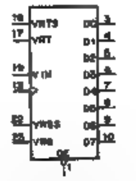
D0–D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0–A2 ; ADDRESS INPUT
RST ; RESET INPUT
CLR ; CLEAR INPUT
PA0–PA7 ; PORT A INPUTS/OUTPUTS
PB0–PB7 ; PORT B INPUTS/OUTPUTS
PC0–PC7 ; PORT C INPUTS/OUTPUTS
PD0–PD7 ; PORT D INPUTS/OUTPUTS
PX0–PX3 ; PORT X INPUTS/OUTPUTS


D0–D7 (DATA BUS)
LATCH
LATCH
LATCH
LATCH
LATCH
PA0–PA7 (PORT A)
PB0–PB7 (PORT B)
PC0–PC7 (PORT C)
PD0–PD7 (PORT D)
PX0–PX3 (PORT X)
CLR
DATA SELECT
A2
A1
A0
CONTROL
WR
RD
CS
RST

CXD1175AM (SONY) FLAT PACKAGE

C-MOS 8-BIT 20MSPS VIDEO A/D CONVERTER
—TOP VIEW—

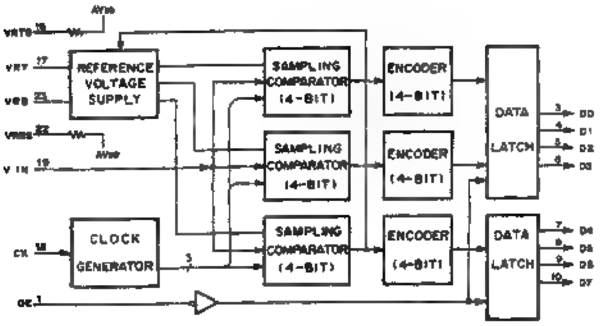

OE IN 1
DVss (GND) 2
D0 OUT 3
D1 OUT 4
D2 OUT 5
D3 OUT 6
D4 OUT 7
D5 OUT 8
D6 OUT 9
D7 OUT 10
DVDD (+5V) 11
CK IN 12
DVDD (+5V) 13
AVDD (+5V) 14
AVDD (+5V) 15
VRTS IN 16
VRT IN 17
AVDD (+5V) 18
VIN IN 19
AVSS (GND) 20
AVSS (GND) 21
VRBS IN 22
VRB IN 23
DVss (GND) 24


VRTS
VRT
VIN
VRBS
VRB
OE
D0
D1
D2
D3
D4
D5
D6
D7

AVDD : ANALOG POWER SUPPLY
AVSS : ANALOG GROUND
CK : CLOCK INPUT
D0 – 7 : DIGITAL DATA OUTPUTS (LSB to MSB)
DVDD : DIGITAL POWER SUPPLY
DVSS : DIGITAL GROUND
OE : OUTPUT ENABLE
(OE = HIGH : HIGH IMPEDANCE)
VIN : ANALOG VOLTAGE INPUT
VRB : BOTTOM REFERENCE VOLTAGE INPUT
VRBS : AS SHORT-CIRCUIT AT VRB, GENERATES + 0.6V
VRT : TOP REFERENCE VOLTAGE INPUT
VRTS : AS SHORT-CIRCUIT AT VRT. GENERATES + 2.6V

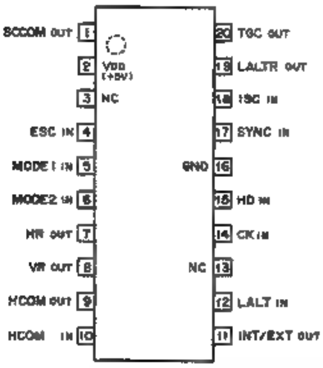
STEP	INPUT SIGNAL VOLTAGE	DATA OUTPUTS							
		D7	D6	D5	D4	D3	D2	D1	D0
0	0V (VRT)	1	1	1	1	1	1	1	1
1	0.01V	1	1	1	1	1	1	1	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
127	1.34V	1	0	0	0	0	0	0	0
128	1.35V	0	1	1	1	1	1	1	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
255	2.7V (VRB)	0	0	0	0	0	0	0	0

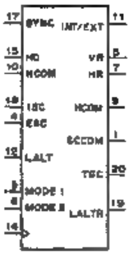
0 : LOW LEVEL
1 ; HIGH LEVEL


AVDD
VRTS 16
VRT 17
VRB 23
VRBS 22
AVSS
VIN 19
CK 12
OE 1
REFERENCE VOLTAGE SUPPLY
CLOCK GENERATOR
3
SAMPLING COMPARATOR (4-BIT)
SAMPLING COMPARATOR (4-BIT)
SAMPLING COMPARATOR (4-BIT)
ENCODER (4-BIT)
ENCODER (4-BIT)
ENCODER (4-BIT)
DATA LATCH
DATA LATCH
3 D0
4 D1
5 D2
6 D3
7 D4
8 D5
9 D6
10 D7

CXD1216M (SONY) FLAT PACKAGE

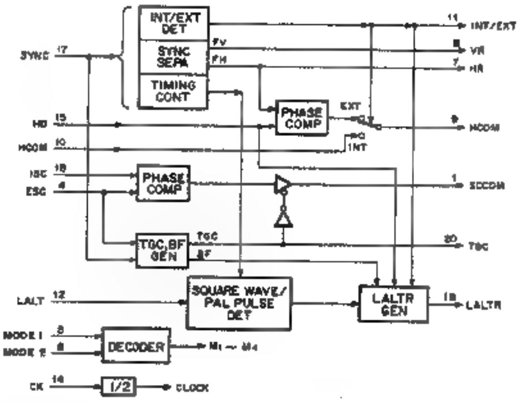
C-MOS GENLOCK DRIVER
—TOP VIEW—


SCCOM OUT 1
VDD (+5V) 2
NC 3
ESC IN 4
MODE1 IN 5
MODE2 IN 6
HR OUT 7
VR OUT 8
HCOM OUT 9
HCOM IN 10
INT/EXT OUT 11
LALT IN 12
NC 13
CK IN 14
HD IN 15
GND 16
SYNC IN 17
ISC IN 18
LALTR OUT 19
TGC OUT 20


17 SYNC
15 HD
10 HCOM
18 ISC
4 ESC
12 LALT
5 MODE 1
6 MODE 2
14
INT/EXT 11
VR 8
HR 7
HCOM 9
SCCOM 1
TGC 20
LALTR 19

INPUT		MODE	SYSTEM
MODE1	MODE2		
0	0	M1	PAL-VBS
1	0	M2	PALM-VBS
0	1	M3	PAL,SECAM-VS/SC/LALT
1	1	M4	NTSC-VBS,NTSC-VS/SC PALM-VS/SC/LALT

0 ; LOW LEVEL
1 ; HIGH LEVEL

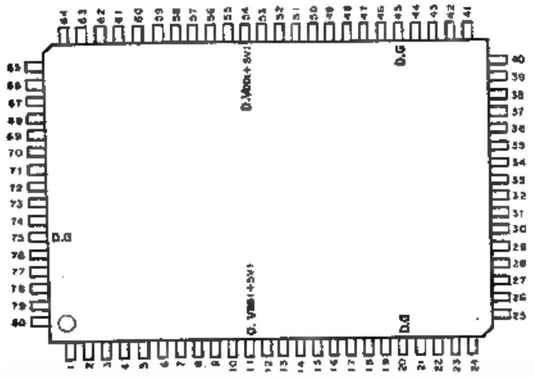

SYNC 17
HD 15
HCOM 10
ISC 18
ESC 4
LALT 12
MODE 1 5
MODE 2 6
CK 14
INT/EXT DET
SYNC SEPA
TIMING CONT
fV
fH
PHASE COMP
EXT
INT
PHASE COMP
TGC,BF GEN
TGC
BF
SQUARE WAVE/ PAL PULSE DET
LALTR GEN
DECODER
M1 ~ M4
1/2
CLOCK
11 INT/EXT
8 VR
7 HR
9 HCOM
1 SCCOM
20 TGC
19 LALTR

INPUT
CK ; 4fsc CLOCK INPUT
ESC ; SC/COLOR BURST
HCOM ; PHASE COMPARATE FROM CXD1217
HD ; H DRIVE FROM CXD1217
ISC ; SUBCARRIER FROM CXD1217
LALT ; LALT FROM REFERENCE SIGNAL GENERATOR
MODE1,2 ; SYSTEM SELECT
SYNC ; SYNC FROM REFERENCE SIGNAL GENERATOR

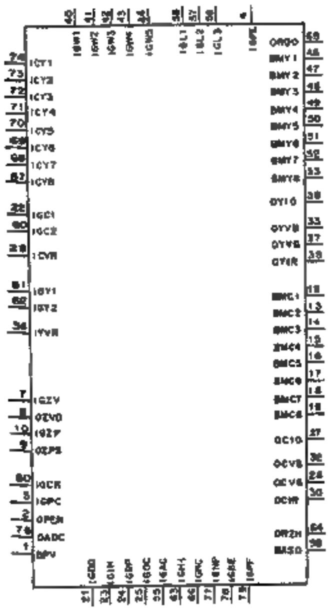
OUTPUT
HCOM ; PHASE COMPARATOR HR WITH HD
HR ; fH OF SYNC SEPARATE
INT/EXT ; INTERNAL/EXTERNAL SPECIFIED
LALTR ; LINE CHANGE RESET
SCCOM ; PHASE COMPARATOR ESC WITH ISC
TGC ; TRISTATE CONTROL
VR ; fV OF SYNC SEPARATE

CXD2105AQ (SONY) FLAT PACKAGE

C-MOS DIGITAL COMB FILTER FOR VTR'S
—TOP VIEW—



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	BPV	21	I	IGDO	41	I	IGW2	61	I	IGY1
2	O	OPER	22	I	IGC1	42	I	IGW3	62	I	IGY2
3	–	A.VDD P	23	I	IGIH	43	I	IGW4	63	I	IGH1
4	I	IGPE	24	I	IGRP	44	I	IGW5	64	O	ORZH
■	I	IGPC	25	I	IGOC	45	–	D.G	65	O	OR00
6	–	A.G P	26	–	A.VDD C	46	I/O	BMY1	66	I	IGRC
7	I	IGZV	27	O	OCIO	47	I/O	BMY2	67	I	IYC8
8	O	OZVD	28	O	OCVG	48	I/O	BMY3	68	I	IYC7
9	O	OZPS	29	–	ICVR	49	I/O	BMY4	69	I	IYC6
10	I	IGZP	30	O	OCIR	50	I/O	BMY5	70	I	IYC5
11	–	D.VDD	31	–	A.G C	51	I/O	BMY6	71	I	IYC4
12	I/O	BMC1	32	O	OCVB	52	I/O	BMY7	72	I	IYC3
13	I/O	BMC2	33	■	OYVB	53	I/O	BMY8	73	I	IYC2
14	I/O	BMC3	34	–	A.G Y	54	–	D.VDD	74	I	IYC1
15	I/O	BMC4	35	O	OYIR	55	I	IGAC	75	–	D.G
16	I/O	BMC5	36	–	IYVR	56	I	IGL3	76	■	OADC
17	I/O	BMC6	37	O	OYVG	57	I	IGL2	77	I	IGNP
18	I/O	BMC7	38	O	OYIO	58	I	IGL1	78	I	IGBE
19	I/O	BMC8	39	–	A.VDD Y	59	I/O	BASO	79	I	IGPF
20	–	D.G	40	I	IGW1	60	I	IGC2	80	I	IGCK

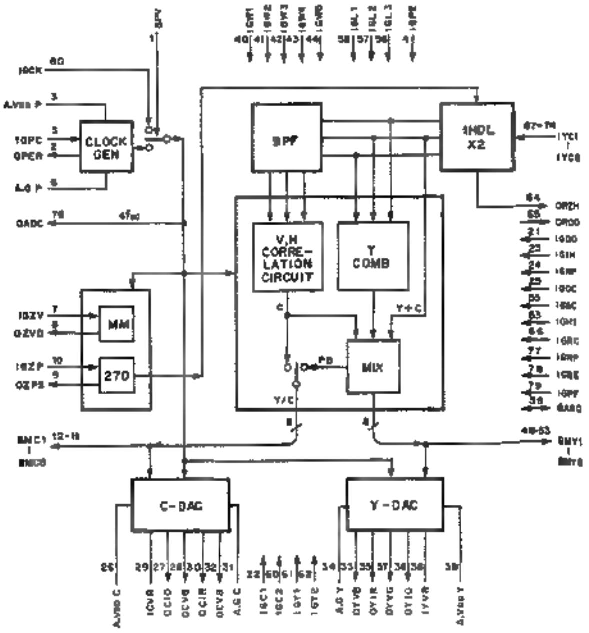


INPUT
BPV ; EXT/INT CLOCK SELECT
ICVR ; ESTABLISHES MAXIMUM AMPLITUDE VALUE FOR OCIO (PIN 27)
IGAC ; V CORRELATION CIRCUIT ON/OFF
IGBE ; SINGLE WAVE DETECTION ON/OFF (Y/C SEPARATION MODE)
IGC1 ; V CORRELATION CIRCUIT SELECT
IGC2 ; CHROMA FLAT SECTION HORIZONTAL FILTER SELECT (Y/C SEPARATION MODE)
IGCK ; EXTERNAL CLOCK
IGDO ; DROPOUT CORRECTION
IGH1 ; FLAT SECTION HORIZONTAL FILTER SELECT (Y/C SEPARATION MODE)
IGIH ; SLEW MODE SET
IGL1 – IGL3 ; LIMITER LEVEL ADJUST FOR Y SIGNAL COMB FILTER
IGNP ; NTSC/PAL FORMAT SELECT
IGOC ; OUTPUT ENABLE
IGPC ; VCO CONTROL
IGPE ; TEST
IGPF ; PLL SUBCARRIER
IGRC ; DELAY LINE LENGTH ADJUST
IGRP ; Y/C SEPARATION AND PLAYBACK MODE SELECT
IGW1 – IGW5 ; Y COMB FILTER DEPTH ADJUST
IGY1, IGY2 ; EDGE SECTION HORIZONTAL FILTER SELECT (Y/C SEPARATION MODE)
IGZP ; 1-BIT DELAY CIRCUIT
IGZV ; VCR HEAD SWITCHING
IYC1 – IYC8 ; VIDEO SIGNAL
IYVR ; ESTABLISHES MAXIMUM AMPLITUDE VALUE FOR OYIO (PIN 38)

OUTPUT
OADC ; CLOCK
OCIO ; CHROMA ANALOG SIGNAL
OCIR ; CONNECT A RESISTOR 16x LARGE THAN THE RESISTOR AT OCIO (PIN 27)
OCVB ; CONNECT TO DIGITAL GND WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OCVG ; CONNECT TO AN ANALOG POWER SUPPLY WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OPER ; PLL ERROR
OR00 ; "0" IS DETECTED AT ALL INPUTS
ORZH ; 1-BIT DELAY CIRCUIT
OYIO ; Y ANALOG SIGNAL
OYIR ; CONNECT A RESISTOR 16x LARGE THAN THE RESISTOR AT OYIO (PIN 38)
OYVB ; CONNECT TO DIGITAL GND WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OYVG ; CONNECT TO AN ANALOG POWER SUPPLY WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OZPS ; 1-BIT DELAY CIRCUIT
OZVD ; VSYNC PERIOD MASK

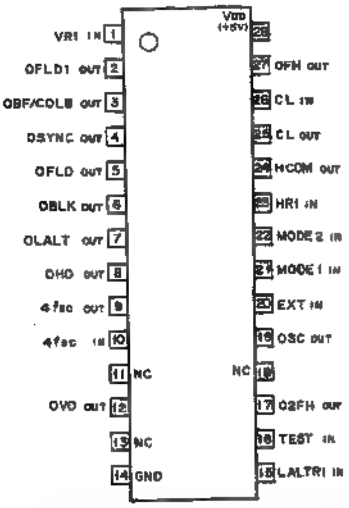
INPUT/OUTPUT
BASO ; EDGE DETECTION LEVEL SELECT (Y/C SEPARATION MODE)
BMC1 – BMC8 ; CHROMA DIGITAL SIGNAL
BMY1 – BMY8 ; Y DIGITAL SIGNAL

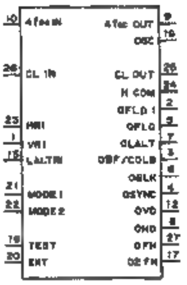
OTHER
A.G C ; ANALOG GND FOR CHROMA D/A
A.G P ; ANALOG GND FOR VCO
A.G Y ; ANALOG GND FOR Y D/A
A.VDD C ; ANALOG POWER SUPPLY FOR CHROMA D/A
A.VDD P ; ANALOG POWER SUPPLY FOR VCO
A.VDD Y ; ANALOG POWER SUPPLY FOR Y D/A
D.G ; DIGITAL GND
D.VDD ; POWER SUPPLY FOR DIGITAL



CXD1217M (SONY) FLAT PACKAGE

C-MOS SYNC GENERATOR
—TOP VIEW—

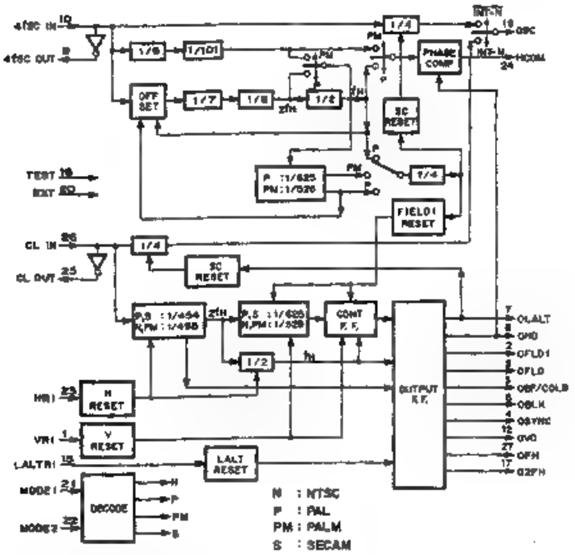

VRI IN 1
OFLD1 OUT 2
OBF/COLB OUT 3
OSYNC OUT 4
OFLD OUT 5
OBLK OUT 6
OLALT OUT 7
OHD OUT 8
4fsc OUT 9
4fsc IN 10
11 NC
OVD OUT 12
13 NC
14 GND
VDD (+5V) 28
27 OFH OUT
26 CL IN
25 CL OUT
24 HCOM OUT
23 HRI IN
22 MODE 2 IN
21 MODE 1 IN
20 EXT IN
19 OSC OUT
NC 18
17 O2FH OUT
16 TEST IN
15 LALTRI IN


4fsc IN
CL IN
HRI
VRI
LALTRI
MODE 1
MODE 2
TEST
EXT
4fsc OUT
OSC
CL OUT
H COM
OFLD 1
OFLD
OLALT
OBF/COLB
OBLK
OSYNC
OVD
OHD
OFH
O2FH

SYSTEM	4fsc	CLOCK
NTSC	910fH	910fH
PAL	1135fH+2fV	908fH
PALM	909fH	910fH
SECAM	—	908fH

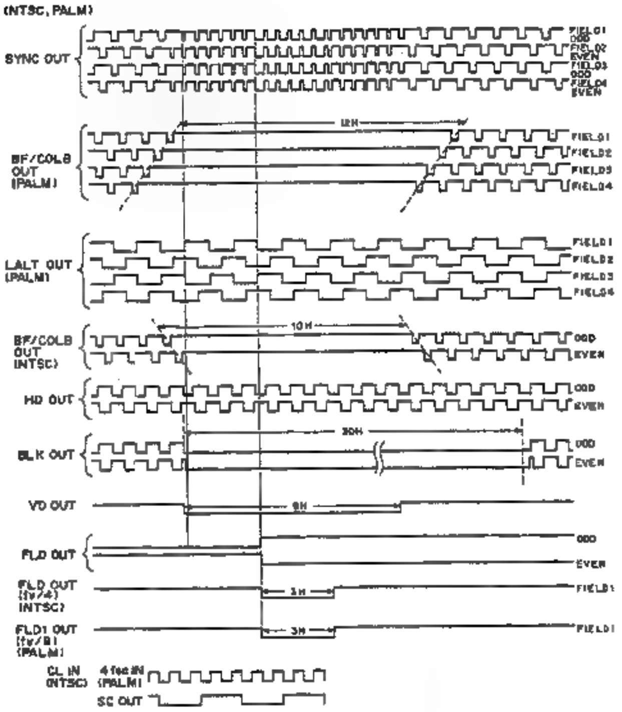
INPUT		SYSTEM
MODE1	MODE2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

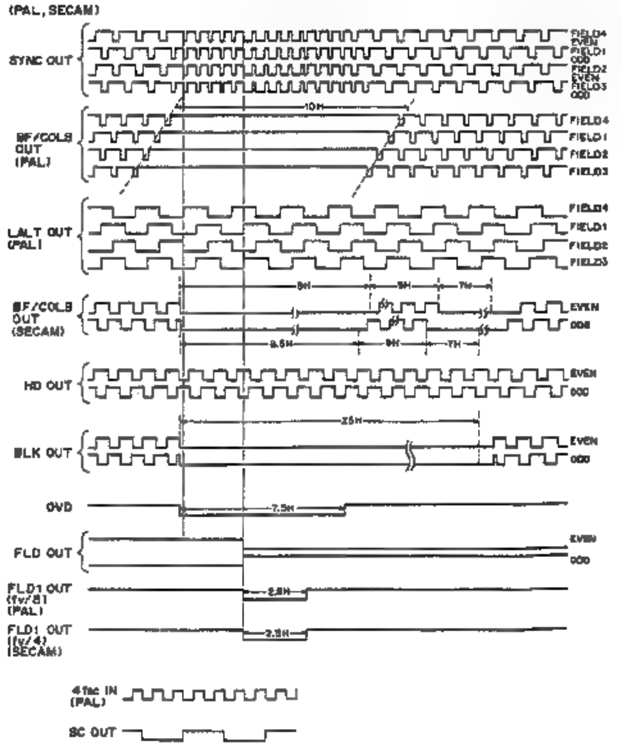
0 : LOW LEVEL
1 : HIGH LEVEL

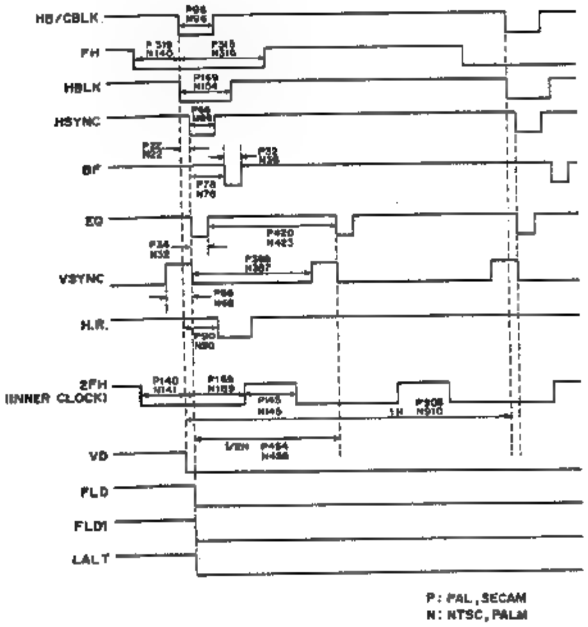

4fsc IN 10
4fsc OUT 9
1/8
1/101
1/4
PHASE COMP
OSC
HCOM 24
OFF SET
1/7
1/8
1/2
SC RESET
TEST 16
EXT 20
P : 1/625
PM : 1/525
1/4
FIELD1 RESET
CL IN 26
CL OUT 25
1/4
SC RESET
P,S : 1/454
N,PM : 1/455
P,S : 1/625
N,PM : 1/525
CONT F.F.
1/2
OUTPUT F.F.
HRI 23
H RESET
VRI 1
V RESET
LALTRI 15
LALT RESET
MODE1 21
MODE2 22
DECODE
OLALT
OHD
OFLD1
OFLD
OBF/COLB
OBLK
OSYNC
OVD
OFH
O2FH
N : NTSC
P : PAL
PM : PALM
S : SECAM

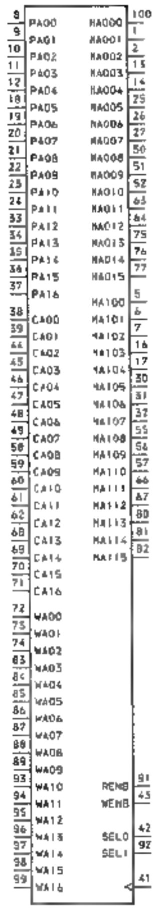
INPUT
4fSC IN : 4fSC INPUT
CL IN : CLOCK INPUT
EXT : SYNC MODE SELECT
(L : INTERNAL/H : EXTERNAL)
HRI : H RESET
LALTRI : LINE CHANGE RESET
MODE 1,2 : SYSTEM SELECT
VRI : V RESET

OUT PUT
4fSC OUT : 4fSC OUTPUT
CL OUT : CLOCK OUTPUT
HCOM : PHASE COMPARATOR
O2fH : 2fH OUTPUT
OBF/COLB : BURST FLAG/COLOR BLANKING
OBLK : COMPOSITE BLANKING
OFH : H FREQUENCE
OFLD : EVEN, ODD
OFLD1 : FIELD1
OHD : H DRIVE
OLALT : LINE CHANGE
OSC : SUBCARRIER
OSYNC : COMPOSITE SYNC
OVD : V DRIVE


(NTSC, PALM)
SYNC OUT
FIELD1 ODD
FIELD2 EVEN
FIELD3 ODD
FIELD4 EVEN
BF/COLB OUT (PALM)
12H
LALT OUT (PALM)
BF/COLB OUT (NTSC)
10H
HD OUT
BLK OUT
20H
VD OUT
9H
FLD OUT
FLD OUT (fv/4) (NTSC)
3H
FLD1 OUT (fv/8) (PALM)
3H
CL IN (NTSC)
4fsc IN (PALM)
SC OUT


(PAL, SECAM)
SYNC OUT
FIELD4 EVEN
FIELD1 ODD
FIELD2 EVEN
FIELD3 ODD
BF/COLB OUT (PAL)
10H
LALT OUT (PAL)
BF/COLB OUT (SECAM)
EVEN
ODD
9H
9H
7H
9.5H
7H
HD OUT
BLK OUT
25H
OVD
7.5H
FLD OUT
FLD1 OUT (fv/8) (PAL)
2.5H
FLD1 OUT (fv/4) (SECAM)
2.5H
4fsc IN (PAL)
SC OUT


HD/CBLK
FH
HBLK
HSYNC
BF
EQ
VSYNC
H.R.
2FH
(INNER CLOCK)
VD
FLD
FLD1
LALT
P420
N423
P140
N141
P145
N145
1H
P908
N910
1/2H
P454
N456
P78
N76
P159
N104
P : PAL, SECAM
N : NTSC, PALM


8 PA00
9 PA01
10 PA02
11 PA03
12 PA04
18 PA05
19 PA06
20 PA07
21 PA08
22 PA09
23 PA10
24 PA11
33 PA12
34 PA13
35 PA14
36 PA15
37 PA16
38 CA00
39 CA01
44 CA02
45 CA03
46 CA04
47 CA05
48 CA06
49 CA07
58 CA08
59 CA09
60 CA10
61 CA11
62 CA12
68 CA13
69 CA14
70 CA15
71 CA16
72 WA00
73 WA01
74 WA02
83 WA03
84 WA04
85 WA05
86 WA06
87 WA07
88 WA08
89 WA09
93 WA10
94 WA11
95 WA12
96 WA13
97 WA14
98 WA15
99 WA16
MA000 100
MA001 1
MA002 2
MA003 13
MA004 14
MA005 25
MA006 26
MA007 27
MA008 50
MA009 51
MA010 52
MA011 63
MA012 64
MA013 75
MA014 76
MA015 77
MA100 5
MA101 6
MA102 7
MA103 16
MA104 17
MA105 30
MA106 31
MA107 32
MA108 55
MA109 56
MA110 57
MA111 66
MA112 67
MA113 80
MA114 81
MA115 82
RENB 91
WENB 43
SEL0 42
SEL1 92
41

INPUT

CA00-CA16 : READ ADDRESS FROM MEMORY
CK : SYSTEM CLOCK
PA00-PA16 : READ ADDRESS FROM MEMORY
RENB : LATCH ENABLE FOR READ SYSTEM
SEL0 : READ/WRITE CHANGE

	MA0	MA1
0	READ	WRITE
1	WRITE	READ

SEL1 : READ ADDRESS SELECT
(0:PA MODE 1:CA MODE)
WA00-WA16 : WRITE ADDRESS TO MEMORY
WENB : LATCH ENABLE FOR WRITE SYSTEM

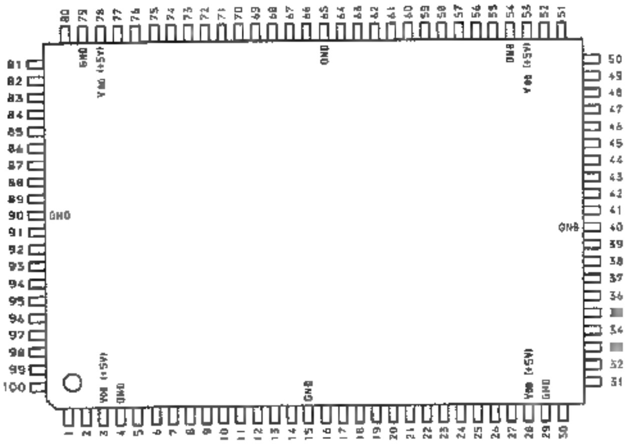
OUTPUT

MA000-MA015 : READ/WRITE ADDRESS
MA100-MA115 : READ/WRITE ADDRESS

CONTROL		OUTPUT	
SEL0	SEL1	MA0	MA1
0	0	PA OUT	WA OUT
0	1	CA OUT	WA OUT
1	0	WA OUT	PA OUT
1	1	WA OUT	CA OUT

CXD8266Q (SONY)

C-MOS MEMORY ADDRESS BUS CONTROL
—TOP VIEW—


GND
VDD (+5V)
GND
GND
VDD (+5V)
GND
GND
VDD (+5V)
GND
GND
GND
VDD (+5V)
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
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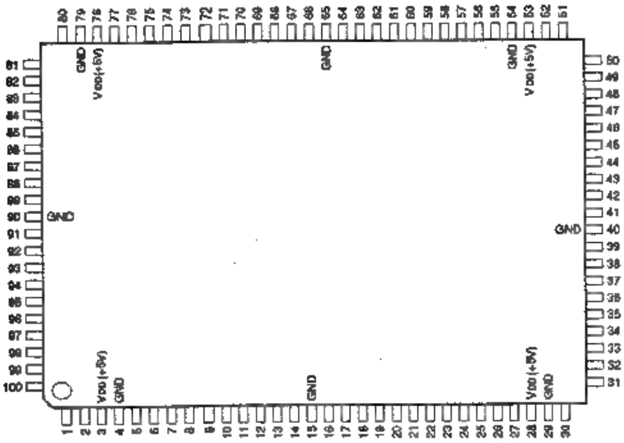
97
98
99
100

(VDD=+5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	O	MA001	26	O	MA006	51	O	MA009	76	O	MA014
2	O	MA002	27	O	MA007	52	O	MA010	77	O	MA015
3	-	VDD	28	-	VDD	53	-	VDD	78	-	VDD
4	-	GND	29	-	GND	54	-	GND	79	-	GND
5	O	MA100	30	O	MA105	55	O	MA108	80	O	MA113
6	O	MA101	31	O	MA106	56	O	MA109	81	O	MA114
7	O	MA102	32	O	MA107	57	O	MA110	82	O	MA115
8	I	PA00	33	I	PA12	58	I	CA08	83	I	WA03
9	I	PA01	34	I	PA13	59	I	CA09	84	I	WA04
10	I	PA02	35	I	PA14	60	I	CA10	85	I	WA05
11	I	PA03	36	I	PA15	61	I	CA11	86	I	WA06
12	I	PA04	37	I	PA16	62	I	CA12	87	I	WA07
13	O	MA003	38	I	CA00	63	O	MA011	88	I	WA08
14	O	MA004	39	I	CA01	64	O	MA012	89	I	WA09
15	-	GND	40	-	GND	65	-	GND	90	-	GND
16	O	MA103	41	I	CK	66	O	MA111	91	I	RENB
17	O	MA104	42	I	SEL0	67	O	MA112	92	I	SEL1
18	I	PA05	43	I	WENB	68	I	CA13	93	I	WA10
19	I	PA06	44	I	CA02	69	I	CA14	94	I	WA11
20	I	PA07	45	I	CA03	70	I	CA15	95	I	WA12
21	I	PA08	46	I	CA04	71	I	CA16	96	I	WA13
22	I	PA09	47	I	CA05	72	I	WA00	97	I	WA14
23	I	PA10	48	I	CA06	73	I	WA01	98	I	WA15
24	I	PA11	49	I	CA07	74	I	WA02	99	I	WA16
25	O	MA005	50	O	MA008	75	O	MA013	100	O	MA000

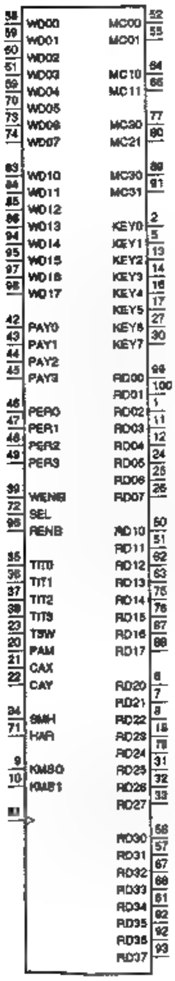
CXD8871Q (SONY)

C-MOS MATRIX DATA PROCESSOR
—TOP VIEW—


GND
VDD(+5V)
GND
GND
VDD(+5V)
GND
GND
VDD(+5V)
GND
GND
VDD(+5V)
GND

(VDD=+5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	RD02	26	I/O	RD07	51	I/O	RD11	76	I/O	RD15
2	O	KEY0	27	O	KEY6	52	O	MC00	77	[illegible]	MC20
3	–	VDD	28	–	VDD	53	–	VDD	78	–	VDD
4	–	GND	29	–	GND	54	–	GND	79	–	GND
5	O	KEY1	30	O	KEY7	55	O	MC01	80	O	MC21
6	I/O	RD20	31	I/O	RD25	56	I/O	RD30	81	I/O	RD34
7	I/O	RD21	32	I/O	RD26	57	I/O	RD31	82	I/O	RD35
8	I/O	RD22	33	I/O	RD27	58	I	WD00	83	I	WD10
9	I	KMS0	34	I	SMH	59	I	WD01	84	I	WD11
10	I	KMS1	35	I	TIT0	60	I	WD02	85	I	WD12
11	I/O	RD03	36	I	TIT1	61	I	WD03	86	I	WD13
12	I/O	RD04	37	I	TIT2	62	I/O	RD12	[illegible]	I/O	RD16
13	O	KEY2	38	I	TIT3	63	I/O	RD13	88	I/O	RD17
14	O	KEY3	39	I	WENB	64	O	MC10	89	O	MC30
15	–	GND	40	–	GND	65	–	GND	90	–	GND
16	O	KEY4	41	I	CK	66	O	MC11	91	O	MC31
17	O	KEY5	42	I	PAY0	67	I/O	RD32	92	I/O	RD36
18	I/O	RD23	43	I	PAY1	68	I/O	RD33	93	I/O	RD37
19	I/O	RD24	44	I	PAY2	69	I	WD04	94	I	WD14
20	I	PAM	45	I	PAY3	70	I	WD05	95	I	WD15
21	I	CAX	46	I	PER0	71	I	HAR	96	I	RENB
22	I	CAY	47	I	PER1	72	I	SEL	97	I	WD16
23	I	TSW	48	I	PER2	73	I	WD06	98	I	WD17
24	I/O	RD05	49	I	PER3	74	I	WD07	99	I/O	RD00
25	I/O	RD06	50	I/O	RD10	75	I/O	RD14	100	I/O	RD01


WD00
WD01
WD02
WD03
WD04
WD05
WD06
WD07
WD10
WD11
WD12
WD13
WD14
WD15
WD16
WD17
PAY0
PAY1
PAY2
PAY3
PER0
PER1
PER2
PER3
WENB
SEL
RENB
TIT0
TIT1
TIT2
TIT3
TSW
PAM
CAX
CAY
SMH
HAR
KMS0
KMS1
MC00
MC01
MC10
MC11
MC30
MC21
MC30
MC31
KEY0
KEY1
KEY2
KEY3
KEY4
KEY5
KEY6
KEY7
RD00
RD01
RD02
RD03
RD04
RD05
RD06
RD07
RD10
RD11
RD12
RD13
RD14
RD15
RD16
RD17
RD20
RD21
RD22
RD23
RD24
RD25
RD26
RD27
RD30
RD31
RD32
RD33
RD34
RD35
RD36
RD37

INPUT

CAX	; X SELECT AT COUNTER ADDRESS MODE
CAY	; Y SELECT AT COUNTER ADDRESS MODE
CL	; SYSTEM CLOCK
HAR	; MATRIX SET (AT SMH=H) EFFECTIVE AREA L=DATA SET ON H LEVEL, H=DATA SET ON L LEVEL
KMS1, KMS0	; LINEAR KEY MODE SELECT 0=FFH, 1=00H, 2=LINEAR KEY, 3=TURN OVER KEY
PAM	; ADDRESS MODE SELECT L=OPERATOR, H=COUNTER
PAY3-PAY0	; MATRIX DATA SELECT (4 BIT TO 2 BIT)
PER3-PER0	; MATRIX DATA OPERATION ERROR DATA H=ERROR, MATRIX DATA SET TO L LEVEL
RENB	; LATCH ENABLE FOR RD0, RD1, RD2 AND RD3
SEL	; READ/WRITE SWITCHING FOR I/O BUFFER L=RD0 AND RD1 ON READ, RD2 AND RD3 ON WRITE H=RD2 AND RD3 ON READ, RD0 AND RD1 ON WRITE
SMH	; MATRIX SET L=NORMALLY OPERATION H=DATA SET ON H LEVEL
TIT3-TIT0	; TITLE SIGNALS H=TITLE (MATRIX DATA CHANGE 11 TO 01)
TSW	; TITLE SWITCH L=TITLE ON, H=TITLE OFF
WD07-WD00	; WRITE DATA TO MEMORY (MATCH FOR RD0 AND RD2)
WD17-WD10	; WRITE DATA TO MEMORY (MATCH FOR RD1 AND RD3)
WENB	; LATCH ENABLE FOR WD0 AND WD1

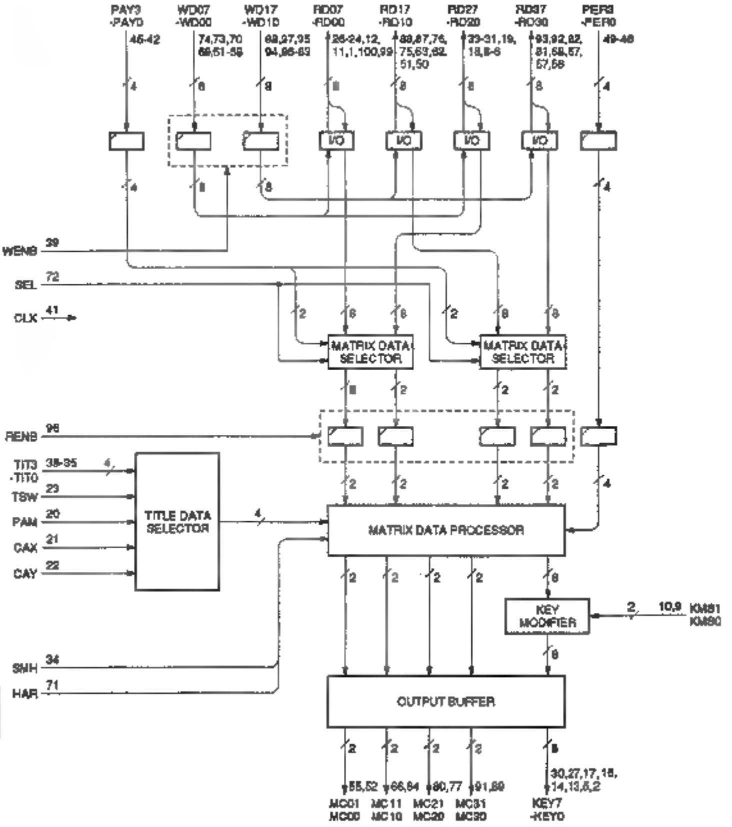
OUTPUT

KEY7-KEY0	; LINEAR KEY FOR SOFT EDGE
MC01-MC00	; BLOCK 0 (LEFT UPPER) MATRIX DATA
MC11-MC10	; BLOCK 1 (RIGHT UPPER) MATRIX DATA
MC21-MC20	; BLOCK 2 (LEFT LOWER) MATRIX DATA
MC31-MC30	; BLOCK 3 (RIGHT LOWER) MATRIX DATA

INPUT/OUTPUT

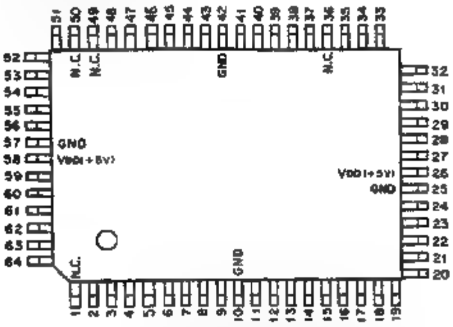
RD07-RD00, RD17-RD10, RD27-RD20, RD37-RD30
; READ DATA INPUTS, WRITE DATA OUTPUTS

SEL	RD0	RD1	RD2	RD3	MC & KEY
0	IN	IN	WD0 OUT	WD1 OUT	FROM RD0, RD1
1	WD0 OUT	WD1 OUT	IN	IN	FROM RD2, RD3

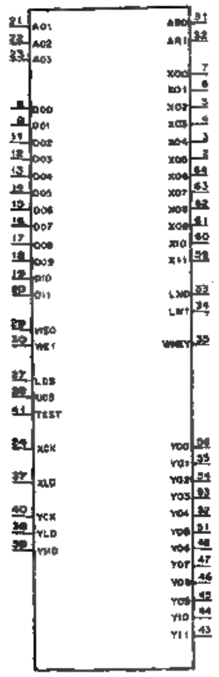

PAY3 -PAY0
WD07 -WD00
WD17 -WD10
RD07 -RD00
RD17 -RD10
RD27 -RD20
RD37 -RD30
PER3 -PER0
45-42
74,73,70 69,51-58
98,97,95 94,86-83
26-24,12, 11,1,100,99
88,87,76, 75,63,62, 51,50
33-31,19, 18,8-6
93,92,82, 81,68,57, 57,56
49-46
I/O
WENB 39
SEL 72
CLK 41
MATRIX DATA SELECTOR
MATRIX DATA SELECTOR
RENB 96
TIT3 -TIT0 38-35
TSW 23
PAM 20
CAX 21
CAY 22
TITLE DATA SELECTOR
MATRIX DATA PROCESSOR
KEY MODIFIER
10,9 KMS1 KMS0
SMH 34
HAR 71
OUTPUT BUFFER
55,52
66,64
80,77
91,89
30,27,17,16, 14,13,5,2
MC01 MC00
MC11 MC10
MC21 MC20
MC31 MC30
KEY7 -KEY0

CXD8033Q (SONY) FLAT PACKAGE

C-MOS GATE ARRAY
—TOP VIEW—


N.C.
N.C.
GND
N.C.
GND
VDD(+5V)
VDD(+5V)
GND
N.C.
GND

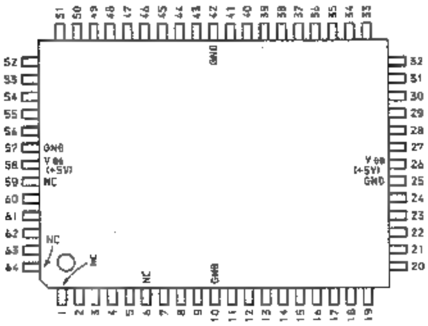
PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	–	N.C.	23	I	A03	45	O	Y09
2	O	X05	24	I	XCK	46	O	Y08
3	O	X04	25	–	GND	47	O	Y07
4	O	X03	26	–	VDD(+5V)	48	O	Y06
5	O	X02	27	I	LDS	49	–	N.C.
6	O	X01	28	I	UDS	50	–	N.C.
7	O	X00	29	I	WE0	51	O	Y05
8	I	D00	30	I	WE1	52	O	Y04
9	I	D01	31	O	AR0	53	O	Y03
10	–	GND	32	O	AR1	54	O	Y02
11	I	D02	33	O	LN0	55	[illegible]	Y01
12	I	D03	34	O	LN1	56	O	Y00
13	I	D04	35	O	WKEY	57	–	GND
14	I	D05	36	–	N.C.	58	–	VDD(+5V)
15	I	D06	37	I	XLD	59	O	X11
16	I	D07	38	I	YLD	60	O	X10
17	I	D08	39	I	YMD	61	O	X09
18	I	D09	40	I	YCK	62	O	X08
19	I	D10	41	I	TEST	63	O	X07
20	I	D11	42	–	GND	64	O	X06
21	I	A01	43	O	Y11			
22	I	A02	44	O	Y10			


A01
A02
A03
D00
D01
D02
D03
D04
D05
D06
D07
D08
D09
D10
D11
WE0
WE1
LDS
UDS
TEST
XCK
XLD
YCK
YLD
YMD
AR0
AR1
X00
X01
X02
X03
X04
X05
X06
X07
X08
X09
X10
X11
LN0
LN1
WKEY
Y00
Y01
Y02
Y03
Y04
Y05
Y06
Y07
Y08
Y09
Y10
Y11

A01 – A03 : ADDRESS 01 – 03
AR0, 1 : VALID AREA 0, 1
D00 – D11 : DATA INPUT 00 – 11
LDS : LOWER DATA STROBE
LN0, 1 : VALID LINE 0, 1
UDS : UPPER DATA STROBE
TEST : TEST PIN
WE0, 1 : WRITE ENABLE 0, 1
X00 – X11 : X CONVERTER OUTPUT
XCK : X CLOCK
WKEY : WIPE KEY
XLD : X LOAD
Y00 – Y11 : Y COUNTER OUTPUT 00 – 11
YCK : Y CLOCK
YLD : Y LOAD
YMD : Y MODE

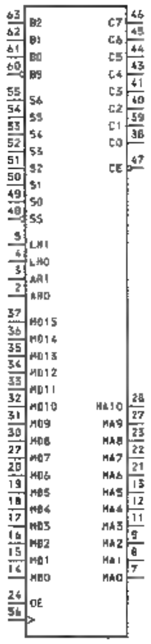
CXD8264Q (SONY)

C-MOS CONTROLLED TO ADDRESS ARITHMETIC
—TOP VIEW—


GND
GND
VDD (+5V)
NC
VDD (+5V)
GND
NC
NC
NC
GND

(VDD=+5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	–	NC	17	I	MD3	33	I	MD11	49	I	S0
2	I	AR0	18	I	MD4	34	I	MD12	50	I	S1
3	I	AR1	19	I	MD5	35	I	MD13	51	I	S2
4	I	LN0	20	I	MD6	36	I	MD14	52	I	S3
5	I	LN1	21	O	MA6	37	I	MD15	53	I	S4
6	–	NC	22	O	MA7	38	O	C0	54	I	S5
7	O	MA0	23	O	MA8	39	O	C1	55	I	S6
8	O	MA1	24	I	OE	40	O	C2	56	I	CK
9	[illegible]	MA2	[illegible]	–	GND	41	O	C3	57	–	GND
10	–	GND	26	–	VDD	42	–	GND	58	–	VDD
11	O	MA3	27	O	MA9	43	O	C4	59	–	NC
12	O	MA4	28	O	MA10	44	O	C5	60	I	BS
13	O	MA5	29	I	MD7	45	O	C6	61	I	B0
14	I	MD0	30	I	MD8	46	O	C7	62	I	B1
15	I	MD1	31	I	MD9	47	O	CE	63	I	B2
16	I	MD2	32	I	MD10	48	I	SS	64	–	NC


B2
B1
B0
BS
S6
S5
S4
S3
S2
S1
S0
SS
LN1
LN0
AR1
AR0
MD15
MD14
MD13
MD12
MD11
MD10
MD9
MD8
MD7
MD6
MD5
MD4
MD3
MD2
MD1
MD0
OE
C7
C6
C5
C4
C3
C2
C1
C0
CE
MA10
MA9
MA8
MA7
MA6
MA5
MA4
MA3
MA2
MA1
MA0

INPUT

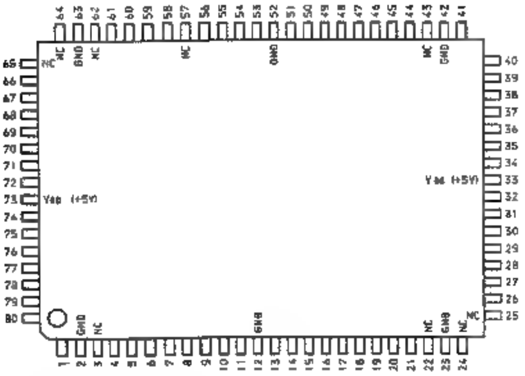
AR0, AR1, LN0, LN1 :
ARITHMETIC AREA SIGNAL PORT
B0-B2 : ADDRESS BANK REGISTER DATA PORT
BS : ADDRESS BANK STROBE
CK : CLOCK
MD0-MD15 : MEMORY DATA PORT
OE : OUTPUT ENABLE FOR MEMORY ADDRESS
S0-S6 : START ADDRESS REGISTER
SS : WRITE STROBE FOR START ADDRESS REGISTER

OUTPUT

C0-C7 : CONTROL PORT FOR ADDRESS ARITHMETIC IC
CE : CHIP ENABLE
MA0-MA10 : MEMORY ADDRESS PORT

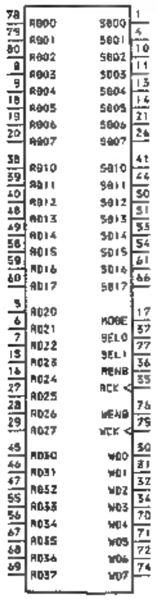
CXD8267Q (SONY)

C-MOS MEMORY DATA BUS CONTROL
—TOP VIEW—


NC
GND
NC
NC
GND
NC
GND
Vss (+5V)
Vss (+5V)
GND
NC
GND
NC
GND
NC
NC
1
24
25
40
41
64
65
80

(V ss=+5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	O	S000	21	O	S006	41	O	S010	61	O	S016
2	-	GND	22	-	NC	42	-	GND	62	-	NC
3	-	NC	23	-	GND	43	-	NC	63	-	GND
4	O	S001	24	-	NC	44	O	S011	64	-	NC
5	I/O	R020	25	-	NC	45	I/O	R030	65	-	NC
6	I/O	R021	26	O	S007	46	I/O	R031	66	O	S017
7	I/O	R022	27	I/O	S025	47	I/O	R032	67	I/O	R035
8	I/O	R003	28	I/O	S026	48	I/O	R013	68	I/O	R036
9	I/O	R004	29	I/O	S027	49	I/O	R014	69	I/O	R037
10	O	S002	30	I	W00	50	O	S012	70	I	W04
11	O	S003	31	I	W01	51	O	S013	71	I	W05
12	-	GND	32	I	W02	52	-	GND	72	I	W06
13	O	S004	33	-	Vss	53	O	S014	73	-	Vss
14	O	S005	34	I	W03	54	O	S015	74	I	W07
15	I/O	R023	35	I	RCK	55	I/O	R033	75	I	WCK
16	I/O	R024	36	I	RENB	56	I/O	R034	76	I	WENB
17	I	MODE	37	I	SEL0	57	-	NC	77	I	SEL1
18	I/O	R005	38	I/O	R010	58	I/O	R015	78	I/O	R000
19	I/O	R006	39	I/O	R011	59	I/O	R016	79	I/O	R001
20	I/O	R007	40	I/O	R012	60	I/O	R017	[illegible]	I/O	R002


R000
R001
R002
R003
R004
R005
R006
R007
R010
R011
R012
R013
R014
R015
R016
R017
R020
R021
R022
R023
R024
R025
R026
R027
R030
R031
R032
R033
R034
R035
R036
R037
S000
S001
S002
S003
S004
S005
S006
S007
S010
S011
S012
S013
S014
S015
S016
S017
MODE
SEL0
SEL1
RENB
RCK
WENB
WCK
W00
W01
W02
W03
W04
W05
W06
W07

INPUT

MODE : DATA BUS CONTROLLER/SELECTOR CHANGE
(0:DATA BUS CONTROLLER, 1:2 TO 1 SELECTOR)
RCK : CLOCK FOR READ SYSTEM
RENB : LATCH ENABLE FOR S000-S007, S010-S017
SEL0 : · READ/WRITE CHANGE (DATA BUS CONTROLLER MODE)

	R00, R01	R02, R03
0	READ	WRITE
1	WRITE	READ

· S00 OUTPUT DATA SELECT (SELECTOR MODE)
(0:R01, 1:R03)

SEL1 : S01 OUTPUT DATA SELECT (SELECTOR MODE)
WCK : CLOCK FOR WRITE SYSTEM
W00-W07 : MEMORY WRITE DATA
WENB : LATCH ENABLE FOR W00-W07

OUTPUT

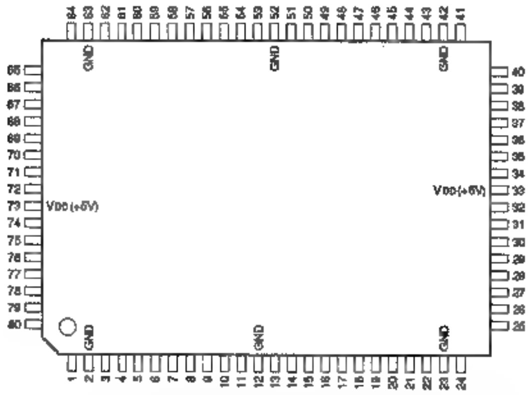
S000-S007, S010-S017 :
READ DATA OUT FROM MEMORY

INPUT/OUTPUT

R000-R007, R010-R017, R020-R027, R030-R037 :
READ DATA IN/WRITE DATA OUT

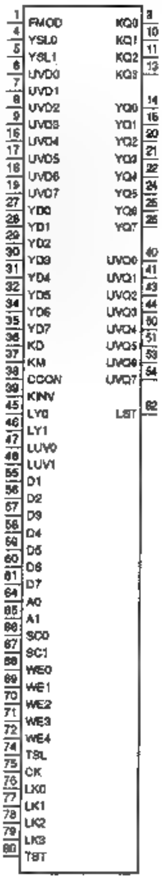
CXD8925Q (SONY)

C-MOS COLOR CORRECT, CHROMA KEY AND LUMINANCE KEY GENERATOR
—TOP VIEW—


GND
GND
GND
VDD (+5V)
VDD (+5V)
GND
GND
GND
1
24
25
40
41
64
65
80

(VDD =+5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	FMOD	21	O	YQ3	41	O	UVQ1	61	I	D7
2	–	GND	22	O	YQ4	42	–	GND	62	O	LST
3	O	KQ0	23	–	GND	43	O	UVQ2	63	–	GND
4	I	YSL0	24	O	YQ5	44	O	UVQ3	64	I	A0
5	I	YSL1	25	O	YQ6	45	I	LY0	65	I	A1
6	I	UVD0	26	O	YQ7	46	I	LY1	66	I	SC0
7	I	UVD1	27	I	YD0	47	I	LUV0	67	I	SC1
8	I	UVD2	28	I	YD1	48	I	LUV1	68	I	WE0
9	I	UVD3	29	I	YD2	49	I	D0	69	I	WE1
10	O	KQ1	30	I	YD3	50	[illegible]	UVQ4	70	I	WE2
11	O	KQ2	31	I	YD4	51	O	UVQ5	71	I	WE3
12	–	GND	32	I	YD5	52	–	GND	72	I	WE4
13	O	KQ3	33	–	VDD	53	O	UVQ6	[illegible]	–	VDD
14	O	YQ0	34	I	YD6	54	O	UVQ7	74	I	TSL
15	O	YQ1	35	I	YD7	55	I	D1	75	I	CK
16	I	UVD4	36	I	KD	56	I	D2	76	I	LK0
17	I	UVD5	37	I	KM	57	I	D3	77	I	LK1
18	I	UVD6	38	I	CCON	58	I	D4	78	I	LK2
19	I	UVD7	39	I	KINV	59	I	D5	79	I	LK3
20	O	YQ2	40	O	UVQ0	60	I	D6	80	I	TST


FMOD
YSL0
YSL1
UVD0
UVD1
UVD2
UVD3
UVD4
UVD5
UVD6
UVD7
YD0
YD1
YD2
YD3
YD4
YD5
YD6
YD7
KD
KM
CCON
KINV
LY0
LY1
LUV0
LUV1
D1
D2
D3
D4
D5
D6
D7
A0
A1
SC0
SC1
WE0
WE1
WE2
WE3
WE4
TSL
CK
LK0
LK1
LK2
LK3
TST
KQ0
KQ1
KQ2
KQ3
YQ0
YQ1
YQ2
YQ3
YQ4
YQ5
YQ6
YQ7
UVQ0
UVQ1
UVQ2
UVQ3
UVQ4
UVQ5
UVQ6
UVQ7
LST

INPUT

A0, A1 ; ADDRESS
CCON ; COLOR CORRECTOR ON
CK ; CLOCK
D0-D7 ; DATA
FMOD ; FREQUENCY MODE SELECT (L ; 1f, H ; 2f)
KD ; KEY
KINV ; KEY INVERTER
KM ; KEY MASK
LK0-LK3 ; KEY DELAY
LUV0, LUV1 ; UV DELAY
LY0, LY1 ; Y (LUMINANCE SIGNAL) DELAY
SC0, SC1 ; UV DATA CYCLE
TST ; ERROR DETECT DATA SELECT
UVD0-UVD7 ; UV DATA
WE0-WE4 ; WRITE ENABLE
YD0-YD7 ; Y (LUMINANCE SIGNAL)
YSL0, YSL1 ; Y SELECT

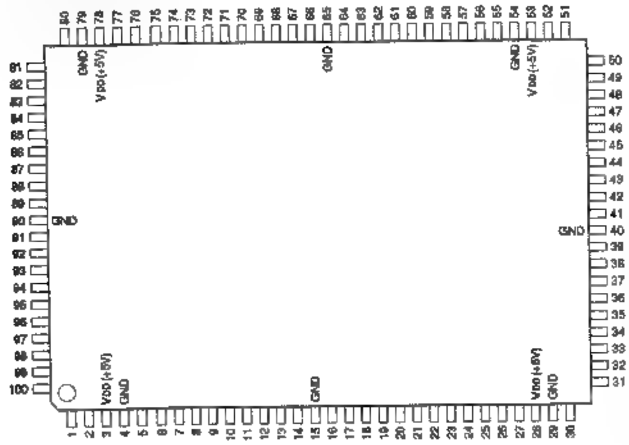
OUTPUT

KQ0-KQ3 ; KEY
LST ; LAST OF UV DATA
UVQ0-UVQ7 ; UV DATA
YQ0-YQ7 ; Y (LUMINANCE SIGNAL)

CXD8879Q (SONY)

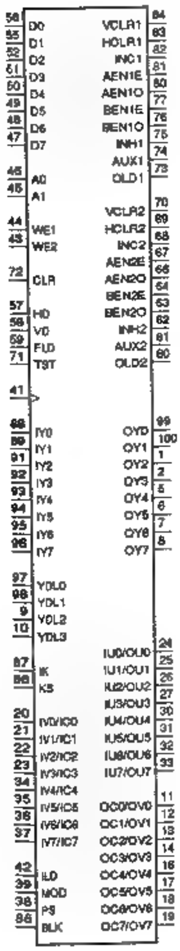
C-MOS MEMORY CONTRLLRE FOR FRAME SYNCHRONIZER

—TOP VIEW—


GND
VDD (+5V)
GND
GND
VDD (+5V)
GND
GND
VDD (+5V)
GND
GND
VDD (+5V)
GND

(VDD = +5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	O	OY2	26	I/O	IU2/OU2	51	I	D3	76	O	BEN1O
2	O	OY3	27	I/O	IU3/OU3	52	I	D2	77	O	BEN1E
3	–	VDD	28	–	VDD	53	–	VDD	78	–	VDD
4	–	GND	29	–	GND	54	–	GND	79	–	GND
5	O	OY4	30	I/O	IU4/OU4	55	I	D1	80	■	AEN1O
6	O	OY5	31	I/O	IU5/OU5	56	I	D0	81	O	AEN1E
7	O	OY6	32	I/O	IU6/OU6	57	I	HD	82	O	INC1
8	O	OY7	33	I/O	IU7/OU7	58	I	VD	83	O	HCLR1
9	I	YDL2	34	I	IV4/IC4	59	I	FLD	84	■	VCLR1
10	I	YDL3	35	I	IV5/IC5	60	O	OLD2	85	I	BLK
11	O	OC0/OV0	36	I	IV6/IC6	61	O	AUX2	86	I	KS
12	O	OC1/OV1	37	I	IV7/IC7	62	O	INH2	87	I	IK
13	■	OC2/OV2	38	I	PS	63	O	BEN2O	88	I	IY0
14	O	OC3/OV3	39	I	MOD	64	■	BEN2E	89	I	IY1
15	–	GND	40	–	GND	65	–	GND	90	–	GND
16	O	OC4/OV4	41	I	CK	66	■	AEN2O	91	I	IY2
17	O	OC5/OV5	42	I	ILD	■	O	AEN2E	92	I	IY3
18	O	OC6/OV6	43	I	WE2	68	O	INC2	93	I	IY4
■	O	OC7/OV7	44	I	WE1	69	O	HCLR2	94	I	IY5
20	I	IV0/IC0	45	I	A1	70	O	VCLR2	95	I	IY6
21	I	IV1/IC1	46	I	A0	71	I	TST	96	I	IY7
22	I	IV2/IC2	47	I	D7	72	I	CLR	97	I	YDL0
23	I	IV3/IC3	48	I	D6	73	O	OLD1	98	I	YDL1
24	I/O	IU0/OU0	49	I	D5	74	O	AUX1	99	O	OY0
25	I/O	IU1/OU1	50	I	D4	75	O	INH1	100	O	OY1


56 D0
55 D1
52 D2
51 D3
50 D4
49 D5
48 D6
47 D7
46 A0
45 A1
44 WE1
43 WE2
72 CLR
57 HD
58 VD
59 FLD
71 TST
41
88 IY0
89 IY1
91 IY2
92 IY3
93 IY4
94 IY5
95 IY6
96 IY7
97 YDL0
98 YDL1
9 YDL2
10 YDL3
87 IK
86 KS
20 IV0/IC0
21 IV1/IC1
22 IV2/IC2
23 IV3/IC3
34 IV4/IC4
35 IV5/IC5
36 IV6/IC6
37 IV7/IC7
42 ILD
39 MOD
38 PS
85 BLK
VCLR1 84
HCLR1 83
INC1 82
AEN1E 81
AEN1O 80
BEN1E 77
BEN1O 76
INH1 75
AUX1 74
OLD1 73
VCLR2 70
HCLR2 69
INC2 68
AEN2E 67
AEN2O 66
BEN2E 64
BEN2O 63
INH2 62
AUX2 61
OLD2 60
OY0 99
OY1 100
OY2 1
OY3 2
OY4 5
OY5 6
OY6 7
OY7 8
IU0/OU0 24
IU1/OU1 25
IU2/OU2 26
IU3/OU3 27
IU4/OU4 30
IU5/OU5 31
IU6/OU6 32
IU7/OU7 33
OC0/OV0 11
OC1/OV1 12
OC2/OV2 13
OC3/OV3 14
OC4/OV4 16
OC5/OV5 17
OC6/OV6 18
OC7/OV7 19

INPUT

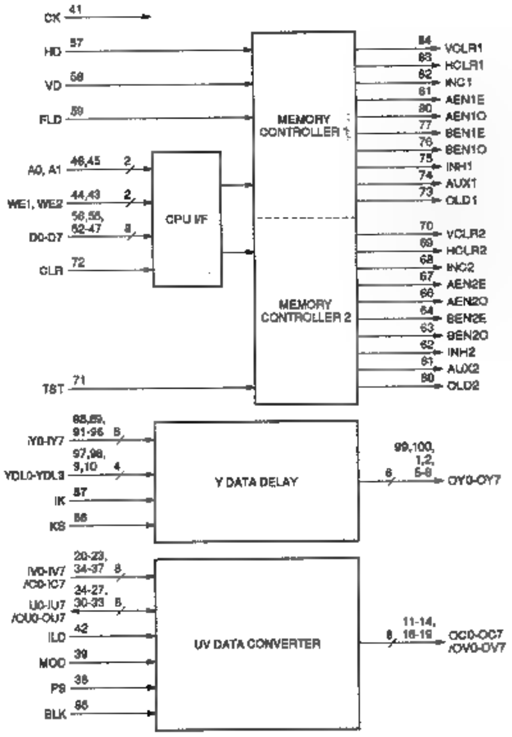
A0, A1 ; ADDRESS BUS
BLK ; BLANKING
CK ; CLOCK
CLR ; CLEAR
D0-D7 ; DATA BUS
FLD ; FIELD (L ; EVEN, H ; ODD)
HD ; HOLIZONTAL SYNCHRONIZED
IK ; 1 BIT KEY
ILD ; LOAD
IV0/IC0-IV7/IC7 ; PARALLEL DATA INPUT OF V DATA AT PARALLEL-SERIAL MODE,
SERIAL DATA INPUT OF UV DATA AT SERIAL-PARALLEL MODE.
IY0-IY7 ; Y DATA BUS
KS ; KEY SELECT
MOD ; MODE SELECT (L ; 4:1:1 MODE, H ; 4:2:2 MODE)
PS ; PARALLEL-SERIAL / SERIAL-PARALLEL SELECT (L ; S → P, H ; P → S)
TST ; TEST
VD ; VERTICAL SYNCHRONIZED
WE1, WE2 ; WRITE ENABLE
YDL0-YDL3 ; Y DATA DELAY

OUTPUT

AEN1E, AEN2E ; A CH EVEN FIELD ENABLE
BEN1E, BEN2E ; B CH EVEN FIELD ENABLE
AEN1O, AEN2O ; A CH ODD FIELD ENABLE
BEN1O, BEN2O ; B CH ODD FIELD ENABLE
AUX1, AUX2 ; MODE 0,1 ; MSB (AUX BIT) OUTPUT OF MD 1·2 REGISTER.
MODE 2 ; HIGH BIT OUTPUT OF LOAD COUNTER.
MODE 3 ; H LEVEL OUTPUT OF LINE NUMBER SET [illegible] VC1·2
REGISTER EVERY V RESET.
H LEVEL OUTPUT AT ALL TIMES WHEN VC1·2=0.
HCLR1, HCLR2 ; HOLIZONTAL CLEAR
INC1, INC2 ; LINE INCREMENT
INH1, INH2 ; INHIBIT
OC0/OV0-OC7/OV7 ; SERIAL DATA OUTPUT OF UV DATA AT PARALLEL-SERIAL MODE,
PARALLEL DATA OUTPUT OF V DATA AT SERIAL-PARALLEL MODE.
OLD1, OLD2 ; MODE 0 ; L LEVEL WHEN LOAD COUNTER OUTPUT IS 0 AT LOAD
SIGNAL FOR 4:1:1 MODE OF UV DATA CONVERTER.
MODE 1,2 ; LOW BIT OUTPUT OF LOAD COUNTER AT LOAD SIGNAL
FOR 4:2:2 MODE OF UV DATA CONVERTER.
MODE 3 ; H LEVEL OUTPUT OF CLOCK NUMBER SET AT LD1·2
REGISTER EVERY [illegible] RESET.
H LEVEL OUTPUT AT ALL TIMES WHEN LD1·2=0.
H LEVEL OUTPUT WHEN AUX1·2 (MODE 3) IS H LEVEL.
OY0-OY7 ; Y DATA BUS
VCLR1, VCLR2 ; VERTICAL CLEAR

INPUT/OUTPUT

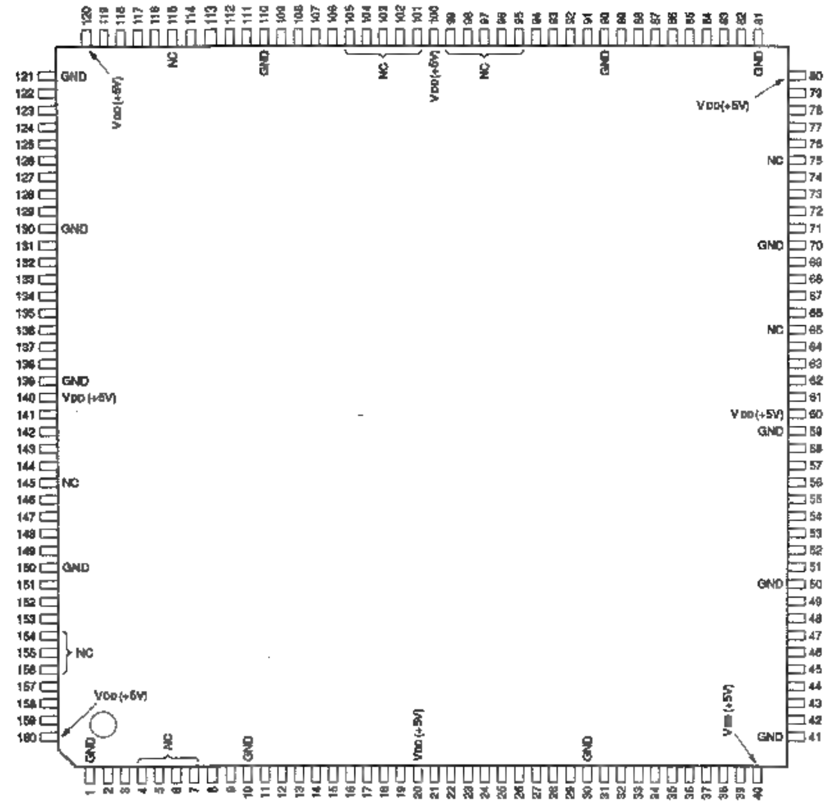
IU0/OU0-IU7/OU7 ; SERIAL DATA OUTPUT OF U DATA AT PARALLEL-SERIAL MODE,
PARALLEL DATA OUTPUT OF U DATA AT SERIAL-PARALLEL MODE.

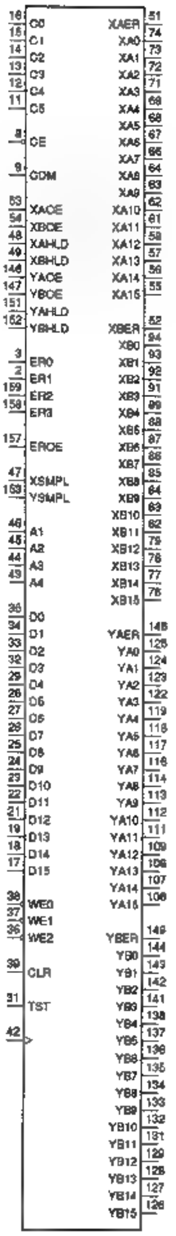

CK 41
HD 57
VD 58
FLD 59
A0, A1 46,45 2
WE1, WE2 44,43 2
D0-D7 56,55, 52-47 8
CLR 72
CPU I/F
MEMORY CONTROLLER 1
MEMORY CONTROLLER 2
TST 71
84 VCLR1
83 HCLR1
82 INC1
81 AEN1E
80 AEN1O
77 BEN1E
76 BEN1O
75 INH1
74 AUX1
73 OLD1
70 VCLR2
69 HCLR2
68 INC2
67 AEN2E
66 AEN2O
64 BEN2E
63 BEN2O
62 INH2
61 AUX2
60 OLD2
IY0-IY7 88,89, 91-96 8
YDL0-YDL3 97,98, 9,10 4
IK 87
KS 86
Y DATA DELAY
8 99,100, 1,2, 5-8 OY0-OY7
IV0-IV7 /IC0-IC7 20-23, 34-37 8
IU0-IU7 /OU0-OU7 24-27, 30-33 8
ILD 42
MOD 39
PS 38
BLK 85
UV DATA CONVERTER
8 11-14, 16-19 OC0-OC7 /OV0-OV7

CXD8872Q (SONY)

C-MOS ADDRESS ARITHMETIC PROCESSOR FOR 2D EFECT

—TOP VIEW—


GND
VDD(+5V)
NC
VDD(+5V)
NC
GND
NC
GND
VDD(+5V)
GND
GND
GND
VDD(+5V)
NC
GND
GND
NC
GND
NC
GND
VDD(+5V)
GND
VDD(+5V)
GND


C0
C1
C2
C3
C4
C5
CE
CDM
XAOE
XBOE
XAHLD
XBHLD
YAOE
YBOE
YAHLD
YBHLD
ER0
ER1
ER2
ER3
EROE
XSMPL
YSMPL
A1
A2
A3
A4
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
WE0
WE1
WE2
CLR
TST
XAER
XA0
XA1
XA2
XA3
XA4
XA5
XA6
XA7
XA8
XA9
XA10
XA11
XA12
XA13
XA14
XA15
XBER
XB0
XB1
XB2
XB3
XB4
XB5
XB6
XB7
XB8
XB9
XB10
XB11
XB12
XB13
XB14
XB15
YAER
YA0
YA1
YA2
YA3
YA4
YA5
YA6
YA7
YA8
YA9
YA10
YA11
YA12
YA13
YA14
YA15
YBER
YB0
YB1
YB2
YB3
YB4
YB5
YB6
YB7
YB8
YB9
YB10
YB11
YB12
YB13
YB14
YB15

(VDD =+5V)

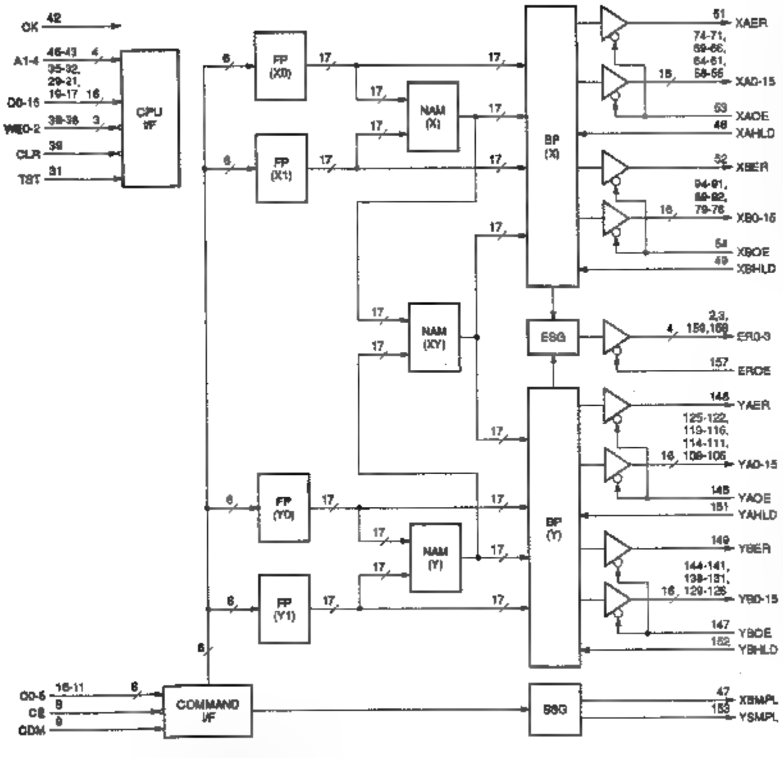
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	–	GND	41	–	GND	81	–	GND	121	–	GND
2	O	ER1	42	I	CK	82	O	XB11	122	O	YA3
3	O	ER0	43	I	A4	83	[illegible]	XB10	123	O	YA2
4	–	NC	44	I	A3	84	O	XB9	124	O	YA1
5	–	NC	45	I	A2	85	O	XB8	125	O	YA0
6	–	NC	46	I	A1	86	O	XB7	126	O	YB15
7	–	NC	47	O	XSMPL	87	O	XB6	127	O	YB14
8	I	CE	48	I	XAHLD	88	O	XB5	128	O	YB13
9	I	CDM	49	I	XBHLD	89	O	XB4	129	O	YB12
10	–	GND	50	–	GND	90	–	GND	130	–	GND
11	I	C5	51	O	XAER	[illegible]	[illegible]	XB3	131	O	YB11
[illegible]	I	C4	52	[illegible]	XBER	92	O	XB2	132	O	YB10
13	I	C3	53	I	XAOE	93	O	XB1	133	O	YB9
14	I	C2	54	I	XBOE	94	O	XB0	134	O	YB8
15	I	C1	55	O	XA15	95	–	NC	135	O	YB7
16	I	C0	56	O	XA14	96	–	NC	136	O	YB6
17	I	D15	57	O	XA13	97	–	NC	137	O	YB5
18	I	D14	58	O	XA12	98	–	NC	138	O	YB4
19	I	D13	59	–	GND	99	–	NC	139	–	GND
20	–	VDD	60	–	VDD	100	–	VDD	140	–	VDD
21	I	D12	61	O	XA11	101	–	NC	141	[illegible]	YB3
22	I	D11	62	O	XA10	102	–	NC	142	O	YB2
23	I	D10	63	O	XA9	103	–	NC	143	O	YB1
24	I	D9	64	O	XA8	104	–	NC	144	O	YB0
25	I	D8	65	–	NC	105	–	NC	145	–	NC
26	I	D7	66	O	XA7	106	O	YA15	146	I	YAOE
27	I	D6	67	O	XA6	107	O	YA14	147	I	YBOE
28	I	D5	68	O	XA5	108	[illegible]	YA13	148	O	YAER
29	I	D4	69	O	XA4	109	O	YA12	149	[illegible]	YBER
30	–	GND	70	–	GND	110	–	GND	150	–	GND
31	I	TST	71	O	XA3	111	O	YA11	151	I	YAHLD
32	I	D3	[illegible]	O	XA2	112	O	YA10	152	I	YBHLD
33	I	D2	73	O	XA1	113	[illegible]	YA9	153	O	YSMPL
34	I	D1	74	O	XA0	114	O	YA8	154	–	NC
35	I	D0	75	–	NC	115	–	NC	155	–	NC
36	I	WE2	76	O	XB15	116	O	YA7	156	–	NC
37	I	WE1	77	O	XB14	117	[illegible]	YA6	157	I	EROE
38	I	WE0	78	O	XB13	118	O	YA5	158	O	ER3
39	I	CLR	79	O	XB12	119	O	YA4	159	O	ER2
40	–	VDD	80	–	VDD	120	–	VDD	160	–	VDD

INPUT

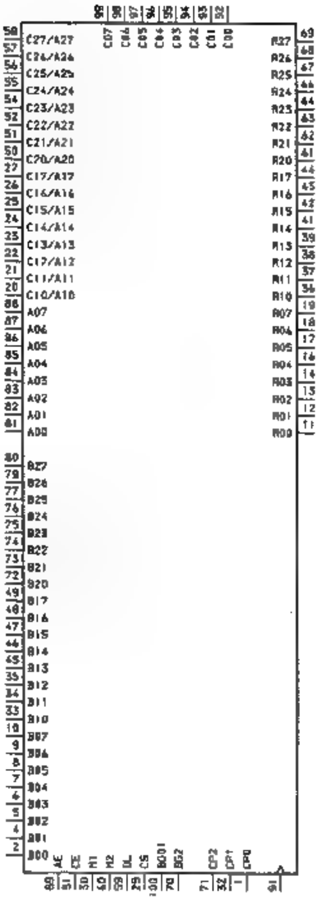
A1-A4 ; ADDRESS
C0-C5 ; FP (FRONT PROCESSOR) CONTROL COMMAND
CE ; FP (FRONT PROCESSOR) CONTROL COMMAND ENABLE
CK ; CLOCK
CLR ; CLEAR
CMD ; COMMAND GENERATION MODE SELECT (L : INTERFACE MODE, H : DIRECT MODE)
D0-D15 ; DATA
TST ; IC TEST
WE0-WE2 ; WRITE ENABLE

OUTPUT

XA0-XA15 ; XA PORT DATA
XAER ; XA PORT STATUS
XAHLD ; XA PORT OUTPUT HOLD (H : HOLD)
XAOE ; XA PORT OUTPUT ENEBLER (H : HIGH IMPEDANCE)
XB0-XB15 ; XB PORT DATA
XBER ; XB PORT STATUS
XBHLD ; XB PORT OUTPUT HOLD (H : HOLD)
XBOE ; XB PORT OUTPUT ENEBLER (H : HIGH IMPEDANCE)
XSMPL ; ADDRESS SAMPLING SIGNAL OF HORIZONTAL DIRECTION
YA0-YA15 ; YA PORT DATA
YAER ; YA PORT STATUS
YAHLD ; YA PORT OUTPUT HOLD (H : HOLD)
YAOE ; YA PORT OUTPUT ENEBLER (H : HIGH IMPEDANCE)
YB0-YB15 ; YB PORT DATA
YBER ; YB PORT STATUS
YBHLD ; YB PORT OUTPUT HOLD (H : HOLD)
YBOE ; YB PORT OUTPUT ENEBLER (H : HIGH IMPEDANCE)
YSMPL ; ADDRESS SAMPLING SIGNAL OF VERTICAL DIRECTION


CK
A1-4
D0-15
WED-2
CLR
TST
CPU I/F
FP (X0)
FP (X1)
NAM (X)
NAM (XY)
BP (X)
ESG
BP (Y)
FP (Y0)
FP (Y1)
NAM (Y)
COMMAND I/F
SSG
XAER
XA0-15
XAOE
XAHLD
XBER
XB0-15
XBOE
XBHLD
ER0-3
EROE
YAER
YA0-15
YAOE
YAHLD
YBER
YB0-15
YBOE
YBHLD
XSMPL
YSMPL
C0-5
CS
CDM

BP :BACK PROCESSOR
COMMAND I/F :COMMAND INTERFACE
CPU I/F :CPU INTERFACE
ESG :ERROR STATUS GENERATOR
FP :FRONT PROCESSOR
NAM :NON ADDITIVE MIX
SSG :SAMPLING SIGNAL GENERATOR



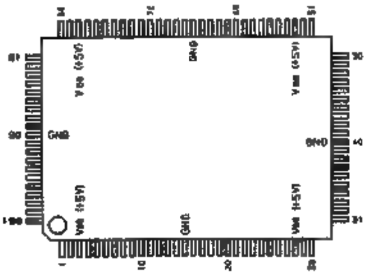
INPUT
A00-A07 :A0 DATA (8 BIT)
A10-A17 :A1 DATA (8 BIT)
A20-A27 :A2 DATA (8 BIT)
AE :ENABLE FOR A DATA
B00-B07 :B0 DATA (8 BIT)
B10-B17 :B1 DATA (8 BIT)
B20-B27 :B2 DATA (8 BIT)
BS01 :INPUT HOLD FOR B0 and B1
BS2 :INPUT HOLD SIGNAL FOR B2
C00-C07 :C0 DATA (8 BIT)
CE :ENABLE FOR C DATA
CLK :CLOCK
CS :CHIP SELECT
CP0 :CONTROL POLE FOR C DATA (at #MIXER0)
CP1 :CONTROL POLE FOR C DATA (at #MIXER1)
CP2 :CONTROL POLE FOR C DATA (at #MIXER2)
DL :DELAY CONTROL
M1 :MIXER MODE FOR #MIXER1
M2 :MIXER MODE FOR #MIXER2

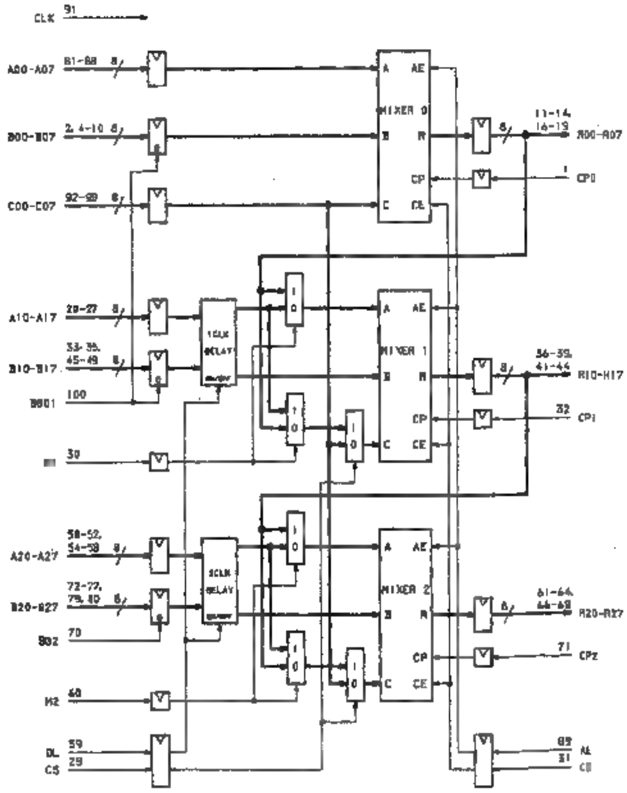
OUTPUT
R00-R07 :R0 DATA (8 BIT)
R10-R17 :R1 DATA (8 BIT)

Notice *
MIXER0:R0=C0*A0+(1-C0)*B0
MIXER1:R1=C1*A1+(1-C1)*B1
MIXER2:R2=C2*A2+(1-C2)*B2

CXD8878Q (SONY)

TRIPEL DIGITAL MIX EFFECT
—TOP VIEW—


VDD (+5V)
GND
VDD (+5V)
GND
GND
VDD (+5V)
GND
VDD (+5V)
1
10
20
30
31
40
50
51
60
70
80
81
90
100

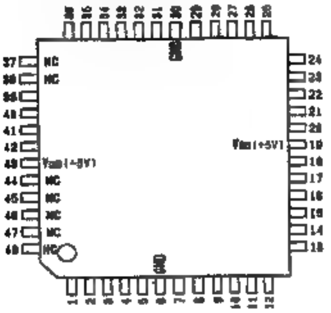

CLK
A00-A07
B00-B07
C00-C07
A10-A17
B10-B17
BS01
CS
A20-A27
B20-B27
BS2
M2
DL
CS
MIXER 0
MIXER 1
MIXER 2
1CLK DELAY
R00-R07
CP0
R10-R17
CP1
R20-R27
CP2
AE
CE

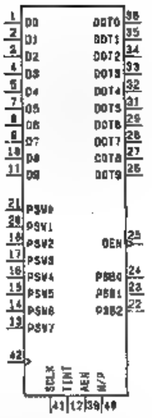
(VDD=+5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	CP0	26	I	C16/A16	51	I	C21/A21	76	I	B24
2	I	B00	27	I	C17/A17	52	I	C22/A22	77	I	B25
3	-	VDD	28	-	VDD	53	-	VDD	78	-	VDD
4	I	B01	29	I	CS	54	I	C23/A23	79	I	B26
5	I	B02	30	I	M1	55	I	C24/A24	80	I	B27
6	I	B03	31	I	CE	56	I	C25/A25	81	I	A00
7	I	B04	32	I	CP1	57	I	C26/A26	82	I	A01
8	I	B05	33	I	B10	58	I	C27/A27	83	I	A02
9	I	B06	34	I	B11	59	I	DL	84	I	A03
10	I	B07	35	I	B12	60	I	M2	85	I	A04
11	O	R00	36	O	R10	61	O	R20	86	I	A05
12	O	R01	37	O	R11	62	O	R21	87	I	A06
13	O	R02	38	O	R12	63	O	R22	88	I	A07
14	O	R03	39	O	R13	64	O	R23	89	I	AE
15	-	GND	40	-	GND	65	-	GND	90	-	GND
16	O	R04	41	O	R14	66	O	R24	91	I	CLK
17	O	R05	42	O	R15	67	O	R25	92	I	C00
18	O	R06	43	O	R16	68	O	R26	93	I	C01
19	O	R07	44	O	R17	69	O	R27	94	I	C02
20	I	C10/A10	45	I	B13	70	I	BS2	95	I	C03
21	I	C11/A11	46	I	B14	71	I	CP2	96	I	C04
22	I	C12/A12	47	I	B15	72	I	B20	97	I	C05
23	I	C13/A13	48	I	B16	73	I	B21	98	I	C06
24	I	C14/A14	49	I	B17	74	I	B22	99	I	C07
25	I	C15/A15	50	I	C20/A20	75	I	B23	100	I	BS01

CXK1203Q (SONY)

C-MOS DIGITAL LINE MEMORY
—TOP VIEW—

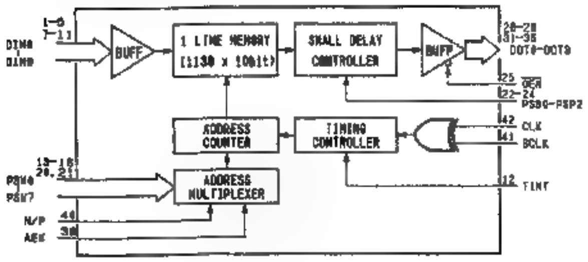

NC
NC
VDD(+5V)
VDD(+5V)
NC
NC
NC
NC
NC
GND
GND


D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
PSW0
PSW1
PSW2
PSW3
PSW4
PSW5
PSW6
PSW7
DOT0
DOT1
DOT2
DOT3
DOT4
DOT5
DOT6
DOT7
DOT8
DOT9
OEN
PSB0
PSB1
PSB2
SCLK
TINT
AEN
N/P

(VDD = + 5V)

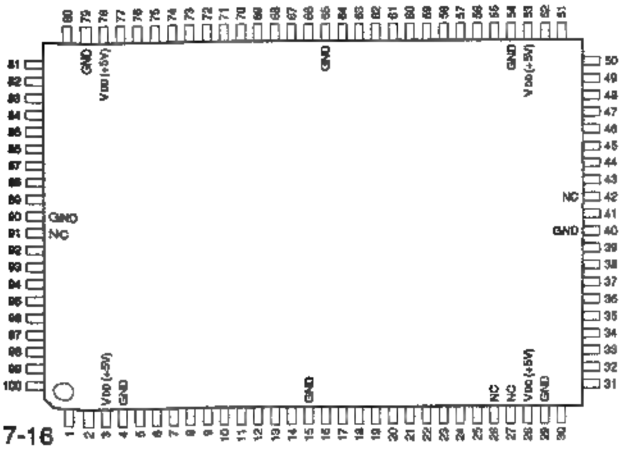
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGANL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	D0	13	I	PSW7	25	I	OEN	37	–	N.C
2	I	D1	14	I	PSW6	26	O	DOT9	38	–	N.C
3	I	D2	15	I	PSW5	27	O	DOT8	39	I	AEN
4	I	D3	16	I	PSW4	28	O	DOT7	40	I	N/P
5	I	D4	17	I	PSW3	29	O	DOT6	41	I	SCLK
6	–	GND	18	I	PSW2	30	–	GND	42	I	CLK
7	I	D5	19	–	VDD	31	O	DOT5	43	–	VDD
8	I	D6	20	I	PSW1	32	O	DOT4	44	–	N.C
9	I	D7	21	I	PSW0	33	O	DOT3	45	–	N.C
10	I	D8	22	I	PSB2	34	■	DOT2	46	–	N.C
11	I	D9	23	I	PSB1	35	■	DOT1	47	–	N.C
12	I	TINT	24	I	PSB0	36	O	DOT0	48	–	N.C

AEN :LINE MEMORY SELECT
CLK :CLOCK
DIN0–DIN9 :VIDEO DATA INPUT
DOT0–DOT9 :VIDEO DATA OUTPUT
N/P :NTSC/PAL/SECAM SELECT
OEN :OUTPUT ENABLE
PSB0–PSB2 :DELAY STEP SELECT(1 BIT×N)
PSW0–PSW7 :DELAY STEP SELECT(8 BIT×N)
SCLK :CLOCK EDGE SELECT
TINT :TEST


DIN0
DIN9
1–6
7–11
BUFF
1 LINE MEMORY
(1130 x 10bit)
SMALL DELAY CONTROLLER
BUFF
26–29
31–36
DOT0–DOT9
25 OEN
22–24 PSB0–PSB2
ADDRESS COUNTER
TIMING CONTROLLER
42 CLK
41 SCLK
12 TINT
13–18
20, 21
PSW0
PSW7
ADDRESS MULTIPLEXER
N/P 40
AEN 39

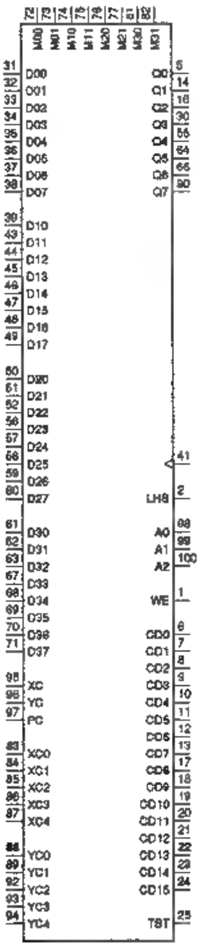
CXD8927Q (SONY)

C-MOS LINEAR INTERPOLATION ARITHETIC
—TOP VIEW—


GND
VDD(+5V)
GND
GND
VDD(+5V)
NC
GND
GND
NC
VDD(+5V)
GND
GND
NC
NC
VDD(+5V)
GND

(VDD = +5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	WE	26	–	NC	51	I	D21	76	I	M20
2	I	LHS	27	–	NC	52	I	D22	77	I	M21
3	–	VDD	28	–	VDD	53	–	VDD	78	–	VDD
4	–	GND	29	–	GND	54	–	GND	79	–	GND
5	O	Q0	30	O	Q3	55	O	Q4	80	O	Q7
6	I	CD0	31	I	D00	56	I	D23	81	I	M30
7	I	CD1	32	I	D01	57	I	D24	82	I	M31
8	I	CD2	33	I	D02	58	I	D25	83	I	XC0
9	I	CD3	34	I	D03	59	I	D26	84	I	XC1
10	I	CD4	35	I	D04	60	I	D27	85	I	XC2
11	I	CD5	36	I	D05	61	I	D30	86	I	XC3
12	I	CD6	37	I	D06	62	I	D31	87	I	XC4
13	I	CD7	38	I	D07	63	I	D32	88	I	YC0
14	O	Q1	39	I	D10	64	O	Q5	89	I	YC1
15	–	GND	40	–	GND	65	–	GND	90	–	GND
16	O	Q2	41	I	CK	66	O	Q6	91	–	NC
17	I	CD8	42	–	NC	67	I	D33	92	I	YC2
18	I	CD9	43	I	D11	68	I	D34	93	I	YC3
19	I	CD10	44	I	D12	69	I	D35	94	I	YC4
20	I	CD11	45	I	D13	70	I	D36	95	I	XC
21	I	CD12	46	I	D14	71	I	D37	96	I	YC
22	I	CD13	47	I	D15	72	I	M00	97	I	PC
23	I	CD14	48	I	D16	73	I	M01	98	I	A0
24	I	CD15	49	I	D17	74	I	M10	99	I	A1
25	I	TST	50	I	D20	75	I	M11	100	I	A2

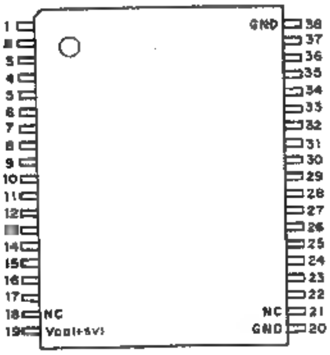

M00
M01
M10
M11
M20
M21
M30
M31
D00
D01
D02
D03
D04
D05
D06
D07
D10
D11
D12
D13
D14
D15
D16
D17
D20
D21
D22
D23
D24
D25
D26
D27
D30
D31
D32
D33
D34
D35
D36
D37
XC
YC
PC
XC0
XC1
XC2
XC3
XC4
YC0
YC1
YC2
YC3
YC4
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
LHS
A0
A1
A2
WE
CD0
CD1
CD2
CD3
CD4
CD5
CD6
CD7
CD8
CD9
CD10
CD11
CD12
CD13
CD14
CD15
TST

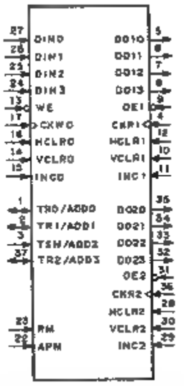
INPUT
A0-A2 ; REGISTER SELECT ADDRESS
CD0-CD15 ; WRITE DATA TO REGISTER
CK ; SYSTEM CLOCK
D00-D07 ; IMAGE DATA (X : EVEN, Y : EVEN)
D10-D17 ; IMAGE DATA (X : ODD, Y : EVEN)
D20-D27 ; IMAGE DATA (X : EVEN, Y : ODD)
D30-D37 ; IMAGE DATA (X : ODD, Y : ODD)
LHS ; REGISTER ASSIGN ADDRESS CHANGE
M00, M01 ; CONTROL BIT (X : EVEN, Y : EVEN)
M10, M11 ; CONTROL BIT (X : ODD, Y : EVEN)
M20, M21 ; CONTROL BIT (X : EVEN, Y : ODD)
M30, M31 ; CONTROL BIT (X : ODD, Y : ODD)
PC ; IMAGE DATA PROCESSING MODE SELECTOR
TST ; TEST
WE ; WRITE ENABLE FOR REGISTER
XC ; X DATA SELECT FOR NON PROCESSING IMAGE
XC0-XC4 ; X DIRECTION INTERPOLATION DATA
YC ; Y DATA SELECT FOR NON PROCESSING IMAGE
YC0-YC4 ; Y DIRECTION INTERPOLATION DATA

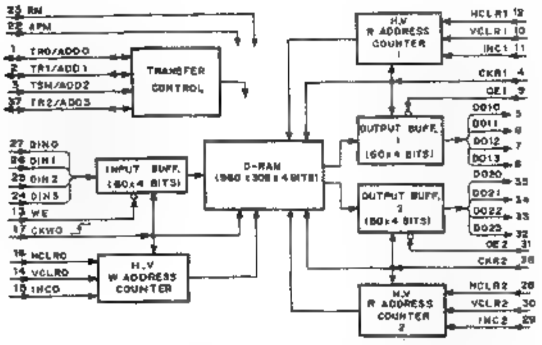
OUTPUT
Q0-Q7 ; RESULT DATA

CXK1206AM (SONY) FLAT PACKAGE

C-MOS VIDEO FIELD MEMORY (960-COLUMN×306-ROW×4-BIT)
—TOP VIEW—


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18 NC
19 VDD(+5V)
GND 38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
NC 21
GND 20


27 DIN0
26 DIN1
25 DIN2
24 DIN3
13 WE
17 CKW0
16 HCLR0
14 VCLR0
15 INC0
1 TR0/ADD0
2 TR1/ADD1
3 TSM/ADD2
37 TR2/ADD3
23 RM
22 APM
DO10 5
DO11 6
DO12 7
DO13 8
OE1 9
CKR1 4
HCLR1 12
VCLR1 10
INC1 11
DO20 35
DO21 34
DO22 33
DO23 32
OE2 31
CKR2 36
HCLR2 28
VCLR2 30
INC2 29


23 RM
22 APM
1 TR0/ADD0
2 TR1/ADD1
3 TSM/ADD2
37 TR2/ADD3
TRANSFER CONTROL
27 DIN0
26 DIN1
25 DIN2
24 DIN3
13 WE
17 CKW0
INPUT BUFF. (60×4 BITS)
D-RAM (960×306×4 BITS)
16 HCLR0
14 VCLR0
15 INC0
H,V W ADDRESS COUNTER
H,V R ADDRESS COUNTER 1
HCLR1 12
VCLR1 10
INC1 11
CKR1 4
OE1 9
OUTPUT BUFF. 1 (60×4 BITS)
DO10 5
DO11 6
DO12 7
DO13 8
OUTPUT BUFF. 2 (60×4 BITS)
DO20 35
DO21 34
DO22 33
DO23 32
OE2 31
CKR2 36
H,V R ADDRESS COUNTER 2
HCLR2 28
VCLR2 30
INC2 29

PIN	SIGNAL	DESCRIPTION
1	TR0/ADD0	W PORT 0 TRANSFER SYNC I/O, ADDRESS 0 INPUT
2	TR1/ADD1	R PORT 1 TRANSFER SYNC I/O, ADDRESS 1 INPUT
3	TSM/ADD2	TRANSFER SYNCHRONOUS MODE, ADDRESS 2 INPUT
4	CKR1	R PORT 1 SHIFT SIGNAL INPUT
5	DO10	R PORT 1 DATA 0 OUTPUT
6	DO11	R PORT 1 DATA 1 OUTPUT
7	DO12	R PORT 1 DATA 2 OUTPUT
8	DO13	R PORT 1 DATA 3 OUTPUT
9	OE1	R PORT 1 OUTPUT ENABLE INPUT
10	VCLR1	R PORT 1 VERTICAL CLEAR INPUT
11	INC1	R PORT 1 LINE INCREMENT INPUT
12	HCLR1	R PORT 1 HORIZONTAL CLEAR INPUT
13	WE	W PORT 0 WRITE ENABLE INPUT
14	VCLR0	W PORT 0 VERTICAL CLEAR INPUT
15	INC0	W PORT 0 LINE INCREMENT INPUT
16	HCLR0	W PORT 0 HORIZONTAL CLEAR INPUT
17	CKW0	W PORT 0 SHIFT SIGNAL INPUT
18	NC	(no connection)
19	VDD	+5V INPUT
20	GND	GND
21	NC	(no connection)
22	APM	ADDRESS PRESET MODE INPUT
23	RM	RECURSIVE MODE ENABLE INPUT
24	DIN3	W PORT 0 DATA 3 INPUT
25	DIN2	W PORT 0 DATA 2 INPUT
26	DIN1	W PORT 0 DATA 1 INPUT
27	DIN0	W PORT 0 DATA 0 INPUT
28	HCLR2	R PORT 2 HORIZONTAL CLEAR INPUT
29	INC2	R PORT 2 LINE INCREMENT INPUT
30	VCLR2	R PORT 2 VERTICAL CLEAR INPUT
31	OE2	R PORT 2 OUTPUT ENABLE INPUT
32	DO23	R PORT 2 DATA 3 OUTPUT
33	DO22	R PORT 2 DATA 2 OUTPUT
34	DO21	R PORT 2 DATA 1 OUTPUT
35	DO20	R PORT 2 DATA 0 OUTPUT
36	CKR2	R PORT 2 SHIFT SIGNAL INPUT
37	TR2/ADD3	R PORT 2 TRANSFER SYNC I/O, ADDRESS 3 INPUT
38	GND	GND

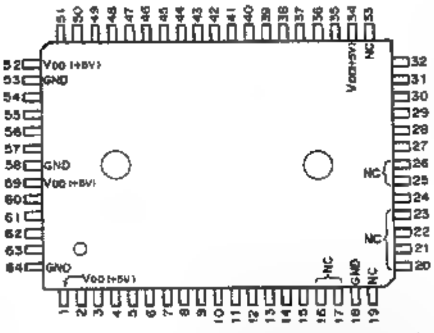
MODE SELECTION

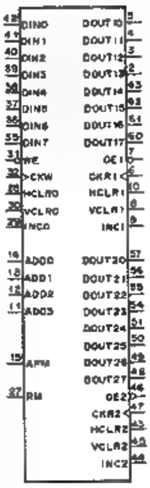
CONTROL INPUTS		TS, TR/ADD			MODE
RM	APM	TSM	TR 0-2	ADD 0-3	
0	0	0	OUT-PUT	-	NON RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE OUTPUT
0	0	1	IN-PUT	-	NON RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE INPUT
0	1	-	-	IN-PUT	NON RECURSIVE MODE, ADDRESS PRESET MODE
1	0	0	OUT-PUT	-	RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE OUTPUT
1	0	1	IN-PUT	-	RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE INPUT

0:LOW LEVEL   1:HIGH LEVEL

CXK48324Q (SONY)

C-MOS 2.4M (960×306×8) BITS 3 PORTS VIDEO FIELD MEMORY
—TOP VIEW—


51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33
VDD(+5V)
NC
52 VDD(+5V)
53 GND
54
55
56
57
58 GND
59 VDD(+5V)
60
61
62
63
64 GND
VDD(+5V)
NC
GND
NC
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
32
31
30
29
28
27
NC 26
25
24
23
NC 22
21
20


42 DIN0
41 DIN1
40 DIN2
39 DIN3
38 DIN4
37 DIN5
36 DIN6
35 DIN7
31 WE
32 CKW
28 HCLR0
30 VCLR0
29 INC0
14 ADD0
13 ADD1
12 ADD2
11 ADD3
15 APM
27 RM
DOUT10 5
DOUT11 4
DOUT12 3
DOUT13 2
DOUT14 63
DOUT15 62
DOUT16 61
DOUT17 60
OE1 7
CKR1 6
HCLR1 10
VCLR1 8
INC1 9
DOUT20 57
DOUT21 56
DOUT22 55
DOUT23 54
DOUT24 51
DOUT25 50
DOUT26 49
DOUT27 48
OE2 46
CKR2 47
HCLR2 43
VCLR2 45
INC2 44

(VDD = + 5 V)

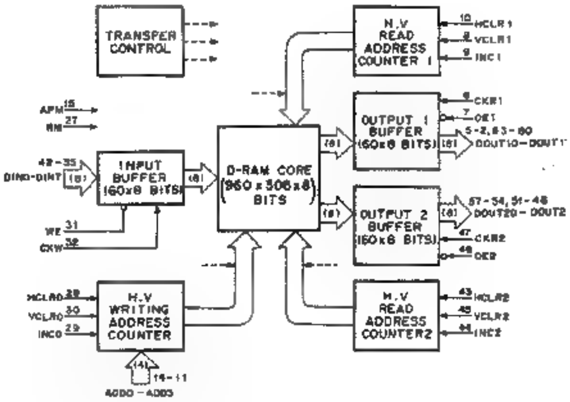
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGANL	PIN No.	I/O	SIGNAL
1	-	VDD	23	-	NC	45	I	VCLR2
2	O	DO13	24	I	TE	46	I	OE2
3	O	DO12	25	-	NC	47	I	CKR2
4	O	DO11	26	-	NC	48	O	DO27
5	O	DO10	27	I	RM	49	O	DO26
6	I	CKR1	28	I	HCLR0	50	[illegible]	DO25
7	I	OE1	29	I	INC0	51	O	DO24
8	I	VCLR1	30	I	VCLR0	[illegible]	-	VDD
9	I	INC1	31	I	WE	53	-	GND
10	I	HCLR1	32	I	CKW	54	O	DO23
11	I	ADD3	33	-	NC	55	O	DO22
12	I	ADD2	34	-	VDD	56	O	DO21
13	I	ADD1	35	I	DIN7	57	O	DO20
14	I	ADD0	36	I	DIN6	58	-	GND
15	I	APM	37	I	DIN5	59	-	VDD
16	-	NC	38	I	DIN4	60	O	DO17
17	-	NC	39	I	DIN3	61	O	DO16
18	-	GND	40	I	DIN2	62	O	DO15
19	-	NC	41	I	DIN1	63	O	DO14
20	-	NC	42	I	DIN0	64	-	GND
21	-	NC	43	I	HCLR2			
22	-	NC	44	I	INC2			

INPUT

ADD0 – ADD3 : ADDRESS INPUT
APM : ADDRESS PRESET MODE ENABLE
CKR1, CKR2 : PORT 1 OR 2 SHIFT SIGNAL INPUT
CKW : PORT 0 SHIFT SIGNAL INPUT
DIN0 – DIN7 : PORT 0 DATA INPUT
HCLR0 – HCLR2 : PORT 0 – 2 HORIZONTAL CLEAR
INC0 – INC2 : PORT 0 – 2 LINE INCREMENT
RM : RECURSIVE MODE ENABLE
TE : TEST MODE ENABLE
VCLR0 – VCLR2 : PORT 0 – 2 VERTICAL CLEAR
OE1, OE2 : PORT 1 OR 2 OUTPUT ENABLE
WE : PORT [illegible] WRITE ENABLE

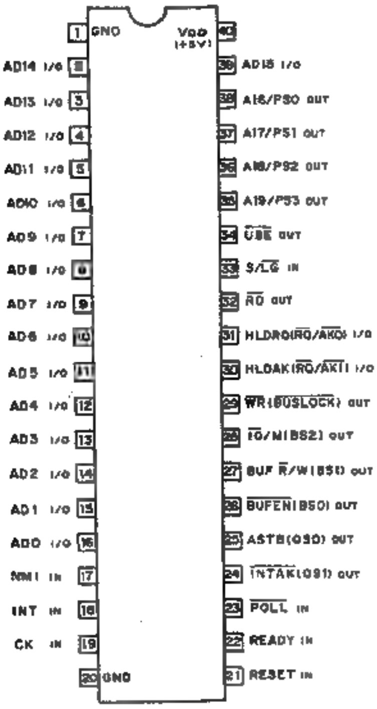
OUTPUT

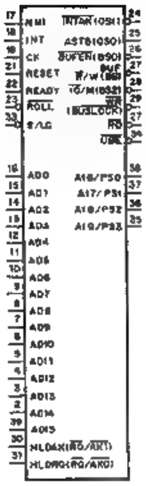
DO10 – DO17 : PORT 1 DATA OUTPUT
DO20 – DO27 : PORT [illegible] DATA OUTPUT


TRANSFER CONTROL
APM 15
RM 27
42 – 35
DIN0 - DIN7
(8)
INPUT BUFFER (60×8 BITS)
WE 31
CKW 32
D-RAM CORE (960×306×8) BITS
H,V WRITING ADDRESS COUNTER
HCLR0 28
VCLR0 30
INC0 29
(4) 14 – 11
ADD0 – ADD3
H,V READ ADDRESS COUNTER 1
10 HCLR1
8 VCLR1
9 INC1
OUTPUT 1 BUFFER (60×8 BITS)
6 CKR1
7 OE1
5 – 2, 63 – 60
DOUT10 – DOUT17
OUTPUT 2 BUFFER (60×8 BITS)
57 – 54, 51 – 48
DOUT20 – DOUT27
47 CKR2
46 OE2
H,V READ ADDRESS COUNTER2
43 HCLR2
45 VCLR2
44 INC2

CXQ70116P-8 (SONY)
CXQ70116P-10 (SONY)

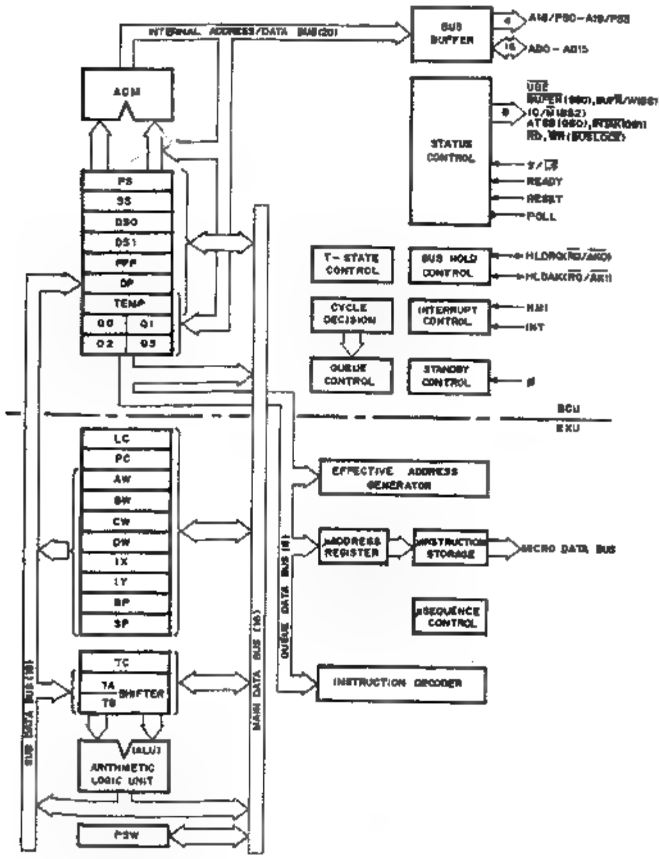
C-MOS 16-BIT MICROPROCESSOR
—TOP VIEW—


1 GND
Vdd (+5V) 40
AD14 I/O 2
AD13 I/O 3
AD12 I/O 4
AD11 I/O 5
AD10 I/O 6
AD9 I/O 7
AD8 I/O 8
AD7 I/O 9
AD6 I/O 10
AD5 I/O 11
AD4 I/O 12
AD3 I/O 13
AD2 I/O 14
AD1 I/O 15
AD0 I/O 16
NMI IN 17
INT IN 18
CK IN 19
20 GND
39 AD15 I/O
38 A16/PS0 OUT
37 A17/PS1 OUT
36 A18/PS2 OUT
35 A19/PS3 OUT
34 UBE OUT
33 S/LG IN
32 RD OUT
31 HLDRQ(RQ/AK0) I/O
30 HLDAK(RQ/AK1) I/O
29 WR(BUSLOCK) OUT
28 IO/M(BS2) OUT
27 BUF R/W(BS1) OUT
26 BUFEN(BS0) OUT
25 ASTB(QS0) OUT
24 INTAK(QS1) OUT
23 POLL IN
22 READY IN
21 RESET IN


17 NMI
18 INT
19 CK
21 RESET
22 READY
23 POLL
33 S/LG
INTAK(QS1) 24
ASTB(QS0) 25
BUFEN(BS0) 26
BUF R/W(BS1) 27
IO/M(BS2) 28
WR (BUSLOCK) 29
RD 32
UBE 34
16 AD0
15 AD1
14 AD2
13 AD3
12 AD4
11 AD5
10 AD6
9 AD7
8 AD8
7 AD9
6 AD10
5 AD11
4 AD12
3 AD13
2 AD14
39 AD15
30 HLDAK(RQ/AK1)
31 HLDRQ(RQ/AK0)
A16/PS0 38
A17/PS1 37
A18/PS2 36
A19/PS3 35

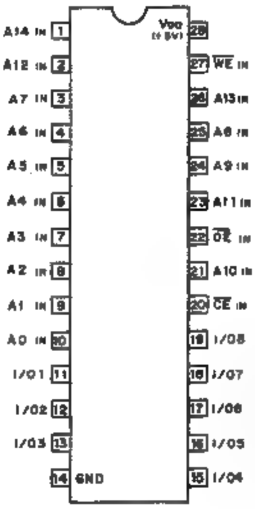
AD15–AD0 ; ADDRESS/DATA BUS
NMI ; NON-MASKABLE INTERRUPT
INT ; MASKABLE INTERRUPT
CK ; CLOCK
$\overline{INTAK}$; INTERRUPT ACKNOWLEDGE
ASTB ; ADDRESS STROBE
$\overline{BUFEN}$; BUFFER ENABLE
BUF R/W ; BUFFER READ/WRITE
IO/M ; IO MEMORY
WR ; WRITE STROBE
HLDAK ; HOLD ACKNOWLEDGE
HLDRQ ; HOLD REQUEST
RD ; READ STROBE
S/LG ; SMALL/LARGE
UBE ; UPPER BYTE ENABLE
A19/PS3–A16/PS0 ; ADDRESS BUS/PROCESSOR STATUS
QS1, 0 ; QUEUE STATUS
BS2~BS0 ; BUS STATUS
BUSLOCK ; BUS LOCK
RQ/AK1, 0 ; HOLD REQUEST/ACKNOWLEDGE

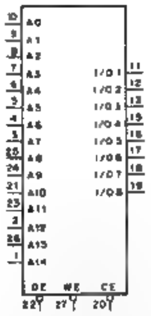
PIN No.	FUNCTION	
	S/LG=HIGH LEVEL	S/LG=LOW LEVEL
24	$\overline{INTAK}$	QS1
25	ASTB	QS0
26	$\overline{BUFEN}$	BS0
27	BUF R/W	BS1
28	$\overline{IO}$/M	BS2
29	$\overline{WR}$	$\overline{BUSLOCK}$
30	HLDAK	$\overline{RQ/AK1}$
31	HLDRQ	$\overline{RQ/AK0}$


INTERNAL ADDRESS/DATA BUS(20)
BUS BUFFER
A16/PS0–A19/PS3
AD0 – AD15
ADM
PS
SS
DS0
DS1
PFP
DP
TEMP
Q0
Q1
Q2
Q3
STATUS CONTROL
UBE
BUFEN(BS0),BUF R/W(BS1)
IO/M(BS2)
ASTB(QS0),INTAK(QS1)
RD, WR(BUSLOCK)
S/LG
READY
RESET
POLL
T-STATE CONTROL
BUS HOLD CONTROL
HLDRQ(RQ/AK0)
HLDAK(RQ/AK1)
CYCLE DECISION
INTERRUPT CONTROL
NMI
INT
QUEUE CONTROL
STANDBY CONTROL
BCU
EXU
LC
PC
AW
BW
CW
DW
IX
IY
BP
SP
EFFECTIVE ADDRESS GENERATOR
ADDRESS REGISTER
INSTRUCTION STORAGE
MICRO DATA BUS
SEQUENCE CONTROL
INSTRUCTION DECODER
TC
TA
TB
SHIFTER
ALU
ARITHMETIC LOGIC UNIT
PSW
SUB DATA BUS (16)
MAIN DATA BUS (16)
QUEUE DATA BUS (8)

CXK58257AM-12LL (SONY) FLAT PACKAGE

C-MOS 32768-WORD×8-BIT STATIC RAM
—TOP VIEW—

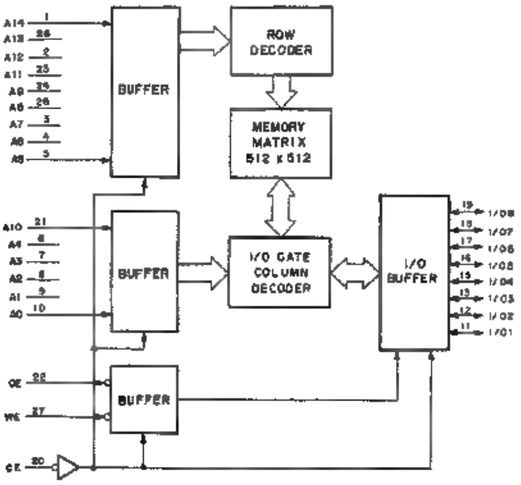

A14 IN 1
A12 IN 2
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10
I/O1 11
I/O2 12
I/O3 13
14 GND
Vdd (+5V) 28
27 WE IN
26 A13 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 OE IN
21 A10 IN
20 CE IN
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4


10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
26 A13
1 A14
I/O1 11
I/O2 12
I/O3 13
I/O4 15
I/O5 16
I/O6 17
I/O7 18
I/O8 19
OE
WE
CE
22
27
20

A0 – A14 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
I/O1 – I/O8 : DATA INPUTS/OUTPUTS
OE : OUTPUT ENABLE INPUT
WE : WRITE ENABLE INPUT

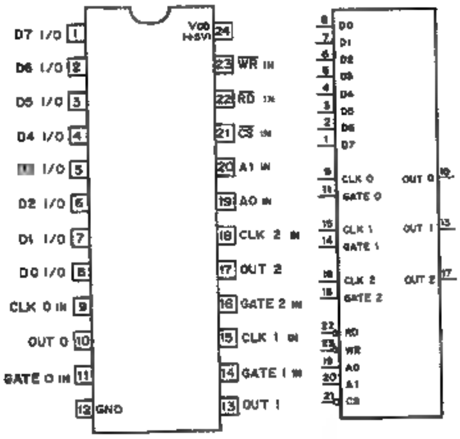
CE	OE	WE	MODE	I/O TERMINAL
1	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	0	1	READ	OUTPUT DATA
0	X	0	WRITE	INPUT DATA

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE


A14 1
A13 26
A12 2
A11 23
A9 24
A8 25
A7 3
A6 4
A5 5
BUFFER
ROW DECODER
MEMORY MATRIX 512 x 512
A10 21
A4 6
A3 7
A2 8
A1 9
A0 10
BUFFER
I/O GATE COLUMN DECODER
I/O BUFFER
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4
13 I/O3
12 I/O2
11 I/O1
OE 22
WE 27
CE 20
BUFFER

CXQ71054P (SONY)

C-MOS PROGRAMMABLE TIMER COUNTER
—TOP VIEW—

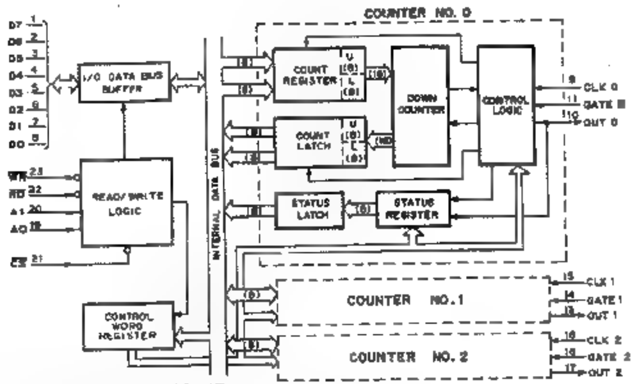

D7 I/O 1
D6 I/O 2
D5 I/O 3
D4 I/O 4
D3 I/O 5
D2 I/O 6
D1 I/O 7
D0 I/O 8
CLK 0 IN 9
OUT 0 10
GATE 0 IN 11
12 GND
24 Vcc (+5V)
23 WR IN
22 RD IN
21 CS IN
20 A1 IN
19 A0 IN
18 CLK 2 IN
17 OUT 2
16 GATE 2 IN
15 CLK 1 IN
14 GATE 1 IN
13 OUT 1
D0
D1
D2
D3
D4
D5
D6
D7
CLK 0
GATE 0
OUT 0
CLK 1
GATE 1
OUT 1
CLK 2
GATE 2
OUT 2
RD
WR
A0
A1
CS

FUNCTION TABLE

INPUTS					FUNCTION
CS	RD	WR	A1	A0	
0	1	0	0	0	Load Counter No. 0
0	1	0	0	1	Load Counter No. 1
0	1	0	1	0	Load Counter No. 2
0	1	0	1	1	Control Word
0	0	1	0	0	Read Counter 0
0	0	1	0	1	Read Counter 1
0	0	1	1	0	Read Counter 2
0	0	1	1	1	No-Operation (HI-Z)
1	X	X	X	X	Disable (HI-Z)
0	1	1	X	X	No-Operation (HI-Z)

A0, A1	: COUNTER SELECT INPUTS
CLK 0 – 2	: COUNTER CLOCK INPUTS
CS	: CHIP SELECT INPUT
D0 – D7	: 8-BIT DATA INPUTS/OUTPUTS
GATE 0 – 2	: COUNTER GATE INPUTS
OUT 0 – 2	: COUNTER OUTPUTS
RD	: READ COUNTER INPUT
WR	: WRITE CMD OR DATA INPUT

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE


COUNTER NO. 0
D7 1
D6 2
D5 3
D4 4
D3 5
D2 6
D1 7
D0 8
I/O DATA BUS BUFFER
WR 23
RD 22
A1 20
A0 19
CS 21
READ/WRITE LOGIC
CONTROL WORD REGISTER
INTERNAL DATA BUS
COUNT REGISTER
COUNT LATCH
DOWN COUNTER
CONTROL LOGIC
STATUS LATCH
STATUS REGISTER
(8)
(16)
U
L
9 CLK 0
11 GATE 0
10 OUT 0
COUNTER NO. 1
15 CLK 1
14 GATE 1
13 OUT 1
COUNTER NO. 2
18 CLK 2
16 GATE 2
17 OUT 2

CONTROL WORD FORMAT

D7	D6	D5	D4	D3	D2	D1	D0
SC1	SC0	RL1	RL0	M2	M1	M0	BCD

BCD	OPERATION
0	16-BIT BINARY
1	BCD (4-DECADE)

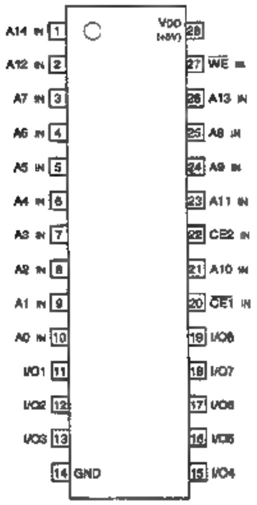
M2	M1	M0	MODE
0	0	0	0
0	0	1	1
X	1	0	2
X	1	1	3
1	0	0	4
1	0	1	5

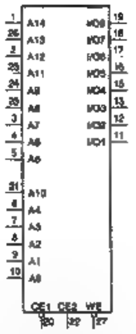
RL1	RL0	OPERATION
0	0	COUNTER LATCHING
0	1	READ/LOAD LSB ONLY
1	0	READ/LOAD MSB ONLY
1	1	LSB FIRST THEN MSB

SC1	SC0	SELECTED COUNTER
0	0	COUNTER No. 0
0	1	COUNTER No. 1
1	0	COUNTER No. 2
1	1	MULTIPLE LATCH CMD

CXK58267AM-10L (SONY)

C-MOS-256K (32768×8)-BIT STATIC RAM
—TOP VIEW—

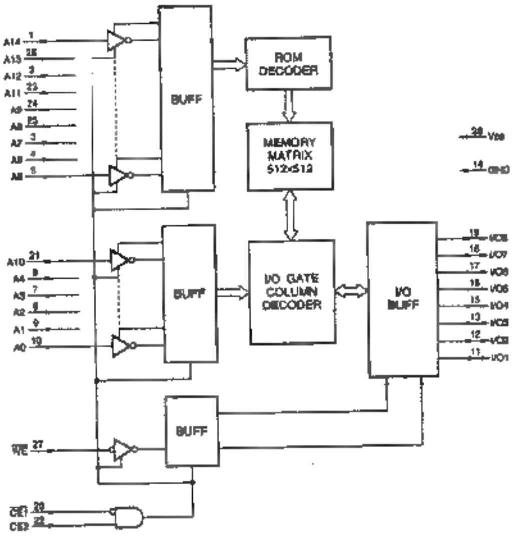

A14 IN 1
A12 IN 2
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10
I/O1 11
I/O2 12
I/O3 13
14 GND
28 VDD (+5V)
27 WE IN
26 A13 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 CE2 IN
21 A10 IN
20 CE1 IN
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4


1 A14
26 A13
2 A12
23 A11
24 A9
25 A8
3 A7
4 A6
5 A5
21 A10
6 A4
7 A3
8 A2
9 A1
10 A0
I/O8 19
I/O7 18
I/O6 17
I/O5 16
I/O4 15
I/O3 13
I/O2 12
I/O1 11
CE1 20
CE2 22
WE 27

A0 - A14	; ADDRESS INPUTS
CE1, CE2	; CHIP ENABLE INPUT
I/O0 - I/O8	; DATA INPUTS/OUTPUTS
WE	; WRITE ENABLE INPUT

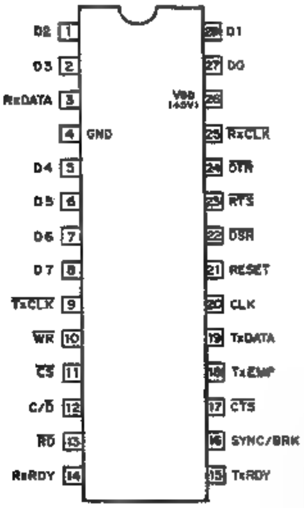
CE1	CE2	WE	MODE	I/O1-8
1	X	X	NOT SELECTED	HI-Z
X	0	X	NOT SELECTED	HI-Z
0	1	1	READ	DATA OUT
0	1	0	WRITE	DATA IN

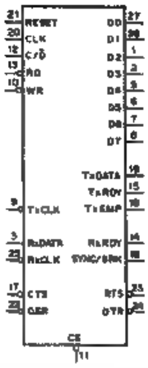
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DONT CARE
HI-Z ; HIGH IMPEDANCE


A14 1
A13 26
A12 2
A11 23
A9 24
A8 25
A7 3
A6 4
A5 5
BUFF
ROM DECODER
MEMORY MATRIX 512×512
28 VDD
14 GND
A10 21
A4 6
A3 7
A2 8
A1 9
A0 10
BUFF
I/O GATE COLUMN DECODER
I/O BUFF
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4
13 I/O3
12 I/O2
11 I/O1
WE 27
BUFF
CE1 20
CE2 22

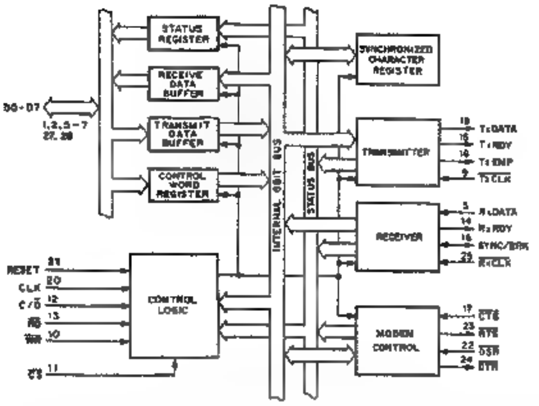
CXQ71051P (SONY)

C-MOS SERIAL CONTROL UNIT
—TOP VIEW—


D2 1
D3 2
RxDATA 3
4 GND
D4 5
D5 6
D6 7
D7 8
TxCLK 9
WR 10
CS 11
C/D 12
RD 13
RxRDY 14
28 D1
27 D0
26 VDD (+5V)
25 RxCLK
24 DTR
23 RTS
22 DSR
21 RESET
20 CLK
19 TxDATA
18 TxEMP
17 CTS
16 SYNC/BRK
15 TxRDY


RESET
CLK
C/D
RD
WR
D0
D1
D2
D3
D4
D5
D6
D7
TxDATA
TxRDY
TxCLK
TxEMP
RxDATA
RxRDY
RxCLK
SYNC/BRK
CTS
DSR
RTS
DTR
CS

CLK	:CLOCK
$\overline{\text{CS}}$	:CHIP SELECT
$\overline{\text{CTS}}$	:CLEAR TO SEND
C/$\overline{\text{D}}$	:CONTROL OR DATA
D0-7	:DATA BUS
$\overline{\text{DSR}}$	:DATA SET READY
$\overline{\text{DTR}}$	:DATA TERMINAL READY
$\overline{\text{RD}}$	:READ STROBE
RESET	:RESET
$\overline{\text{RTS}}$	:REQUEST TO SEND
$\overline{\text{RXCLK}}$	:RECEIVER CLOCK
RXDATA	:RECEIVE DATA
RXRDY	:RECEIVER READY
SYNC/BRK	:SYNCRONIZATION/BREAK
$\overline{\text{TXCLK}}$	:TRANSMITTER CLOCK
TXDATA	:TRANSMIT DATA
TXENP	:TRANSMITTER EMPTY
TXRDY	:TRANSMITTER READY
$\overline{\text{WR}}$	:WRITE STROBE

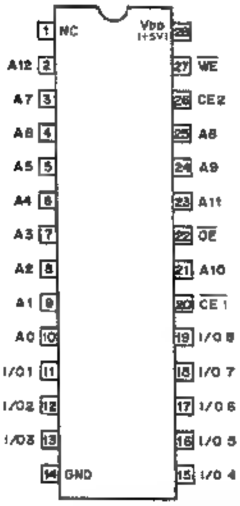

D0-D7
1,2,5-7
27, 28
STATUS REGISTER
RECEIVE DATA BUFFER
TRANSMIT DATA BUFFER
CONTROL WORD REGISTER
INTERNAL 8BIT BUS
STATUS BUS
SYNCHRONIZED CHARACTER REGISTER
TRANSMITTER
RECEIVER
CONTROL LOGIC
MODEM CONTROL
RESET 21
CLK 20
C/D 12
RD 13
WR 10
CS 11
19 TxDATA
15 TxRDY
18 TxEMP
9 TxCLK
3 RxDATA
14 RxRDY
16 SYNC/BRK
25 RxCLK
17 CTS
23 RTS
22 DSR
24 DTR

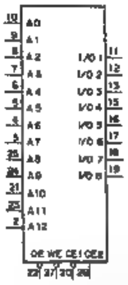
$\overline{\text{CS}}$	$\overline{\text{RD}}$	$\overline{\text{WR}}$	C/$\overline{\text{D}}$	MODE	FUNCTION
0	0	1	0	RECEIVE DATA BUFFER--> DATA BUS	READ RECEIVE DATA
0	0	1	1	STATUS REGISTER--> DATA BUS	READ STATUS
0	1	0	0	DATA BUS--> TRANSMIT DATA BUFFER	WRITE RECEIVE DATA
0	1	0	1	DATA BUS--> CONTROL WORD REGISTER	WRITE CONTROL WORD
0	1	1	X	DATA BUS:HIGH IMPEDANCE	
1	X	X	X	DATA BUS:HIGH IMPEDANCE	

1:HIGH LEVEL
0:LOW LEVEL
X:DON'T CARE

CXK5864CM-10LL (SONY) FLAT PACKAGE

C-MOS 64K (8192X8)-BIT STATIC RAM
—TOP VIEW—

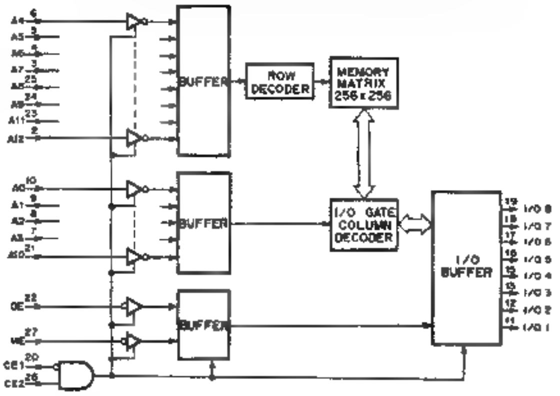

1 NC
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
I/O1 11
I/O2 12
I/O3 13
14 GND
VDD (+5V) 28
27 WE
26 CE2
25 A8
24 A9
23 A11
22 OE
21 A10
20 CE1
19 I/O 8
18 I/O 7
17 I/O 6
16 I/O 5
15 I/O 4


A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
I/O 1
I/O 2
I/O 3
I/O 4
I/O 5
I/O 6
I/O 7
I/O 8
OE WE CE1 CE2
22 27 20 26

A0 – A12	; ADDRESS INPUT
CE1, CE2	; CHIP ENABLE INPUT
I/O1 – I/O8	; DATA INPUT/OUTPUT
OE	; OUTPUT ENABLE INPUT
WE	; WRITE ENABLE INPUT

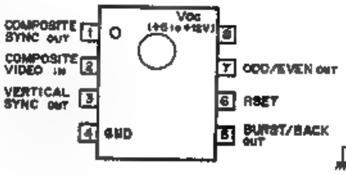
$\overline{\text{CE1}}$	CE2	$\overline{\text{OE}}$	$\overline{\text{WE}}$	MODE	I/O TERMINAL
1	X	X	X	NOT SELECT	HIGH IMPEDANCE
X	0	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	1	0	1	READ	OUTPUT DATA
0	1	X	0	WRITE	INPUT DATA

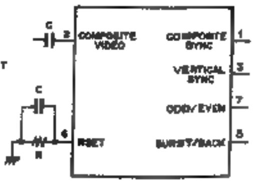
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DONT CARE

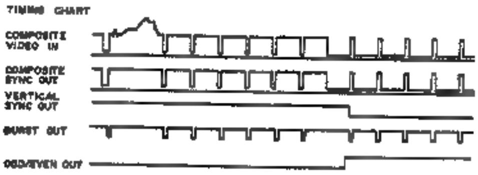

A4
A5
A6
A7
A8
A9
A11
A12
BUFFER
ROW DECODER
MEMORY MATRIX 256×256
A0
A1
A2
A3
A10
BUFFER
I/O GATE COLUMN DECODER
I/O BUFFER
OE 22
WE 27
CE1 20
CE2 26
BUFFER
I/O 8
I/O 7
I/O 6
I/O 5
I/O 4
I/O 3
I/O 2
I/O 1

LM1881M (NS) FLAT PACKAGE

VIDEO SYNC SEPARATOR
—TOP VIEW—

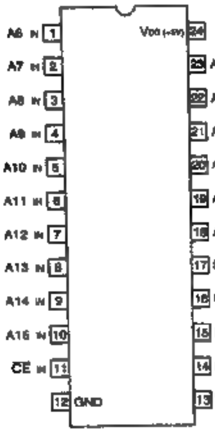

COMPOSITE SYNC OUT 1
COMPOSITE VIDEO IN 2
VERTICAL SYNC OUT 3
4 GND
Vcc (+5 to +12V) 8
7 ODD/EVEN OUT
6 RSET
5 BURST/BACK OUT

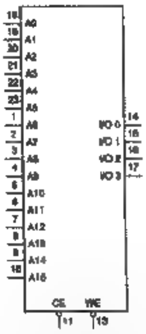

C
2 COMPOSITE VIDEO
C
R
6 RSET
COMPOSITE SYNC 1
VERTICAL SYNC 3
ODD/EVEN 7
BURST/BACK 5



CY7C194-25VC (CYPRESS) CHIP CARRIER

C-MOS 256K (65,536×4)-BIT STATIC READ/WRITE RAM
—TOP VIEW—

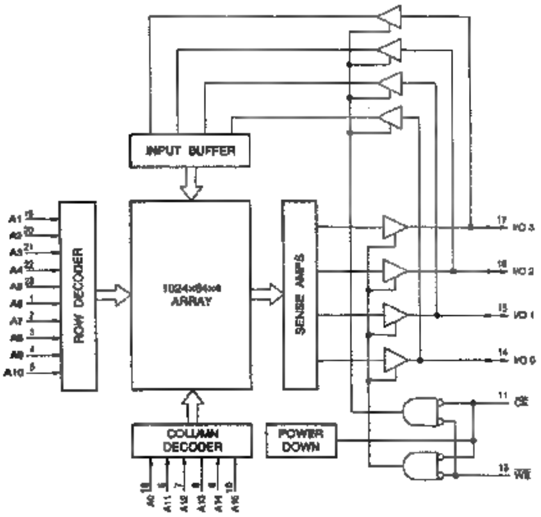

A6 IN 1
A7 IN 2
A8 IN 3
A9 IN 4
A10 IN 5
A11 IN 6
A12 IN 7
A13 IN 8
A14 IN 9
A15 IN 10
CE IN 11
12 GND
13 WE
14 I/O 0
15 I/O 1
16 I/O 2
17 I/O 3
18 A0 IN
19 A1 IN
20 A2 IN
21 A3 IN
22 A4 IN
23 A5 IN
VDD(+5V) 24


A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
I/O 0
I/O 1
I/O 2
I/O 3
CE
WE
11
13

CE	WE	I/O	MODE
1	X	HI-Z	DESELECT/POWER-DOWN
0	1	DATA OUT	READ
0	0	DATA IN	WRITE

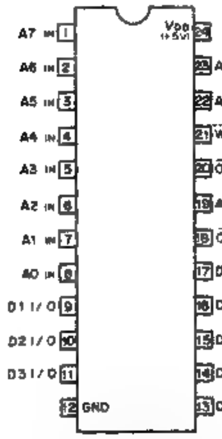
A0 - A15 ; ADDRESS INPUTS
CE ; CHIP ENABLE INPUT
I/O0 - I/O3 ; DATA INPUTS/OUTPUTS
WE ; WRITE ENABLE INPUT

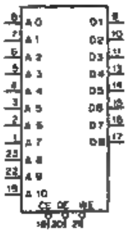
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DONT CARE
HI-Z ; HIGH IMPEDANCE


INPUT BUFFER
ROW DECODER
1024×64×4 ARRAY
SENSE AMPS
COLUMN DECODER
POWER DOWN
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A0
A11
A12
A13
A14
A15
I/O 3
I/O 2
I/O 1
I/O 0
CE
WE

IDT6116SA25S0 (IDT) FLAT PACKAGE

C-MOS 16K (2048×8)-BIT STATIC RAM
—TOP VIEW—


A7 IN 1
A6 IN 2
A5 IN 3
A4 IN 4
A3 IN 5
A2 IN 6
A1 IN 7
A0 IN 8
D1 I/O 9
D2 I/O 10
D3 I/O 11
12 GND
13 D4 I/O
14 D5 I/O
15 D6 I/O
16 D7 I/O
17 D8 I/O
18 CE
19 A10 IN
20 OE
21 WE
22 A9 IN
23 A8 IN
VDD (+5V) 24

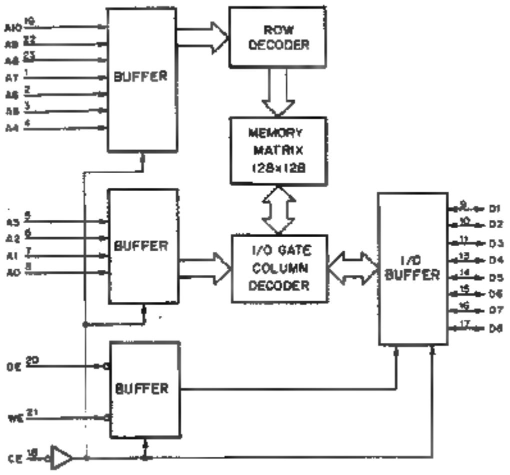

A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
D1
D2
D3
D4
D5
D6
D7
D8
CE
OE
WE
18
20
21

A0 – A10 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
D1 – D8 : DATA INPUTS/OUTPUTS
OE : OUTPUT ENABLE INPUT
WE : WRITE ENABLE INPUT

FUNCTION TABLE

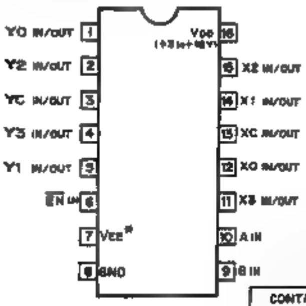
CONTROL INPUTS			MODE	D1 – D8
CE	OE	WE		
1	X	X	STANDBY	HI-Z
0	1	1	DISABLE OUTPUT	HI-Z
0	0	1	FEAD	OUTPUT
0	X	0	WRITE	INPUT

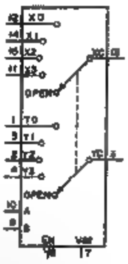
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DONT CARE
HI-Z ; HIGH IMPEDANCE


A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
BUFFER
ROW DECODER
MEMORY MATRIX 128×128
I/O GATE COLUMN DECODER
I/O BUFFER
D1
D2
D3
D4
D5
D6
D7
D8
OE
WE
CE
BUFFER

HD14053BFP (HITACHI) FLAT PACKAGE
MC14053BF (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
—TOP VIEW—


Y0 IN/OUT 1
Y2 IN/OUT 2
YC IN/OUT 3
Y3 IN/OUT 4
Y1 IN/OUT 5
EN IN 6
7 VEE*
8 GND
9 B IN
10 A IN
11 X3 IN/OUT
12 X0 IN/OUT
13 XC IN/OUT
14 X1 IN/OUT
15 X2 IN/OUT
VDD (+3 to +18V) 16


X0
X1
X2
X3
XC
OPEN
Y0
Y1
Y2
Y3
YC
OPEN
A
B
EN
VEE

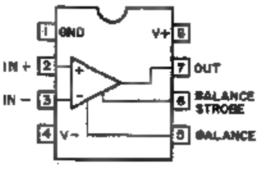
VEE* ; VDD − VSS = +3 to +18V

CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

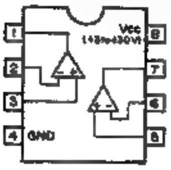
LM311M (NS) FLAT PACKAGE
LM311PS (TI) FLAT PACKAGE

VOLTAGE COMPARATOR WITH STROBE
—TOP VIEW—


1 GND
IN + 2
IN − 3
4 V−
V+ 8
7 OUT
6 BALANCE STROBE
5 BALANCE

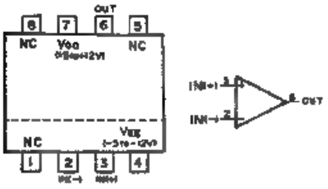
LM358PS (TI) FLAT PACKAGE
UPC358G2 (NEC) FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIERS
—TOP VIEW—


1
2
3
4
GND
Vcc
(+3V to +30V)
8
7
6
5
-
+

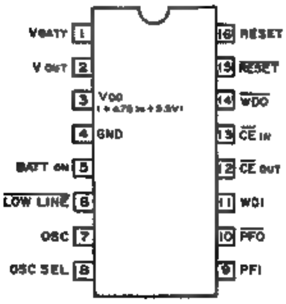
LT1252CS8 (LINEAR TECH) FLAT PACKAGE

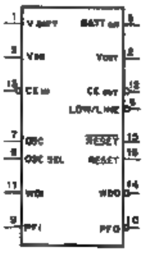
VIDEO AMPLIFIER
—TOP VIEW—


OUT
8
7
6
5
NC
Vcc
(+5V to +12V)
NC
NC
VEE
(-5V to -12V)
1
2
3
4
IN(-)
IN(+)
IN(+)
IN(-)
3
2
6
OUT

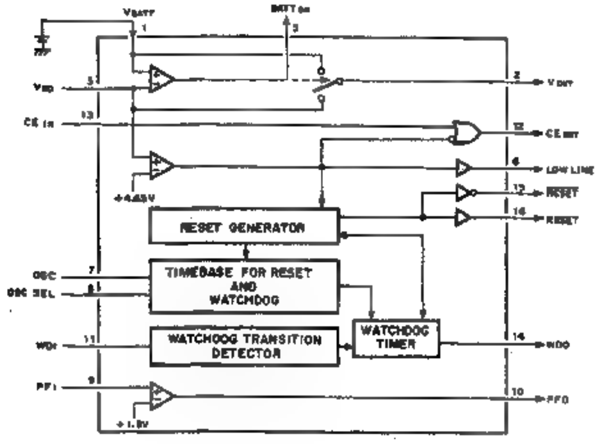
MAX691CPE (MAXIM)

C-MOS MICROPROCESSOR SUPERVISORY CIRCUITS
—TOP VIEW—


VBATT 1
V OUT 2
3 VCC (+4.75 to +5.5V)
4 GND
BATT ON 5
LOW LINE 6
OSC 7
OSC SEL 8
16 RESET
15 RESET
14 WDO
13 CE IN
12 CE OUT
11 WDI
10 PFO
9 PFI

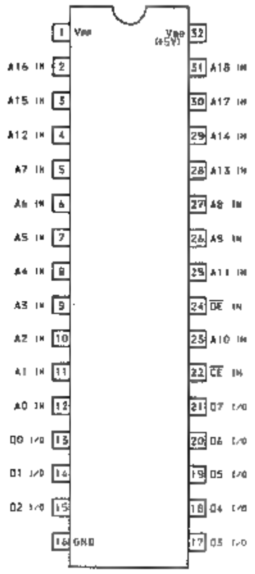

1 V BATT
3 VCC
13 CE IN
7 OSC
8 OSC SEL
11 WDI
9 PFI
BATT ON 5
VOUT 2
CE OUT 12
LOW LINE 6
RESET 13
RESET 16
WDO 14
PFO 10

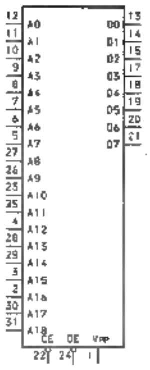
CE ; CHIP ENABLE
PFI, PFO ; POWER FAIL INPUT/OUTPUT
WDI, WDO ; WATCHDOG INPUT/OUTPUT


VBATT
1
BATT ON
3
VCC
5
CE IN
13
+4.65V
RESET GENERATOR
OSC
7
OSC SEL
8
TIMEBASE FOR RESET AND WATCHDOG
WDI
11
WATCHDOG TRANSITION DETECTOR
WATCHDOG TIMER
PFI
9
+1.3V
2
V OUT
12
CE OUT
6
LOW LINE
13
RESET
16
RESET
14
WDO
10
PFO

M27C4001-12F1 (SGS)

C-MOS 4M-BIT UV EPROM
—TOP VIEW—


1 Vpp
A16 IN 2
A15 IN 3
A12 IN 4
A7 IN 5
A6 IN 6
A5 IN 7
A4 IN 8
A3 IN 9
A2 IN 10
A1 IN 11
A0 IN 12
O0 I/O 13
O1 I/O 14
O2 I/O 15
16 GND
Vcc (+5V) 32
31 A18 IN
30 A17 IN
29 A14 IN
28 A13 IN
27 A8 IN
26 A9 IN
25 A11 IN
24 OE IN
23 A10 IN
22 CE IN
21 O7 I/O
20 O6 I/O
19 O5 I/O
18 O4 I/O
17 O3 I/O

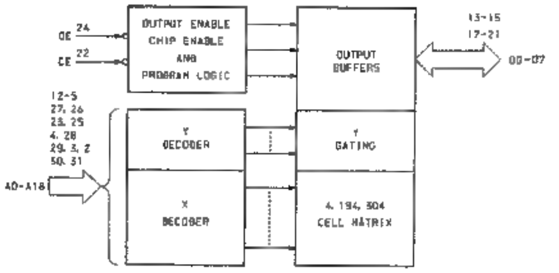

12 A0
11 A1
10 A2
9 A3
8 A4
7 A5
6 A6
5 A7
27 A8
26 A9
23 A10
25 A11
4 A12
28 A13
29 A14
3 A15
2 A16
30 A17
31 A18
O0 13
O1 14
O2 15
O3 17
O4 18
O5 19
O6 20
O7 21
CE 22
OE 24
Vpp 1

A0-A19:ADDRESS INPUTS
CE :CHIP ENABLE INPUT
O0-O7 :DATA INPUTS/OUTPUTS
OE :OUTPUT ENABLE INPUT
Vpp :PROGRAMMING VOLTAGE INPUT (+12.75V)

PINS					MODE
CE	OE	A9	Vpp	O0-O7	
0	0	x	x	D OUT	READ
0	1	x	x	HI-Z	OUTPUT DISABLE
1	X	x	x	HI-Z	STAND BY
0	1	x	Vpp	D IN	PROGRAM
1	0	x	Vpp	D OUT	PROGRAM VERIFY
1	1	x	Vpp	HI-Z	PROGRAM INHIBIT
0	0	+12V	Vpp	CODE	ELECTRONIC SIGNATURE

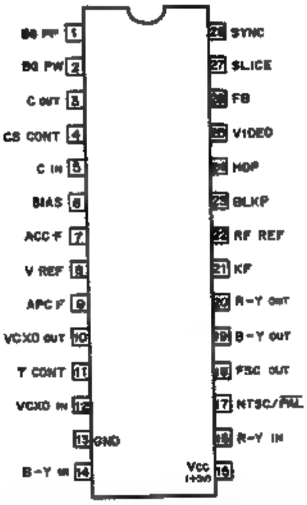
0 :LOW LEVEL
1 :HIGH LEVEL
X :DON'T CARE
HI-Z:HIGH IMPEDANCE

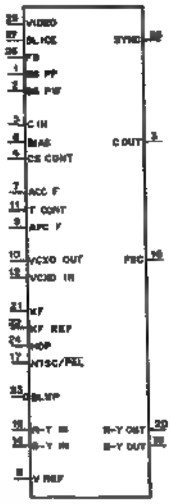
INDENTIFIER	A0	CODE DATA								
		O7	O6	O5	O4	O3	O2	O1	O0	
MANUFACTURER CODE	0	0	0	1	0	0	0	0	0	20
DEVICE CODE	1	0	1	0	0	0	0	0	1	41


OE 24
CE 22
OUTPUT ENABLE CHIP ENABLE AND PROGRAM LOGIC
OUTPUT BUFFERS
13-15
17-21
O0-O7
12-5
27, 26
23, 25
4, 28
29, 3, 2
30, 31
A0-A18
Y DECODER
Y GATING
X DECODER
4,194,304 CELL MATRIX

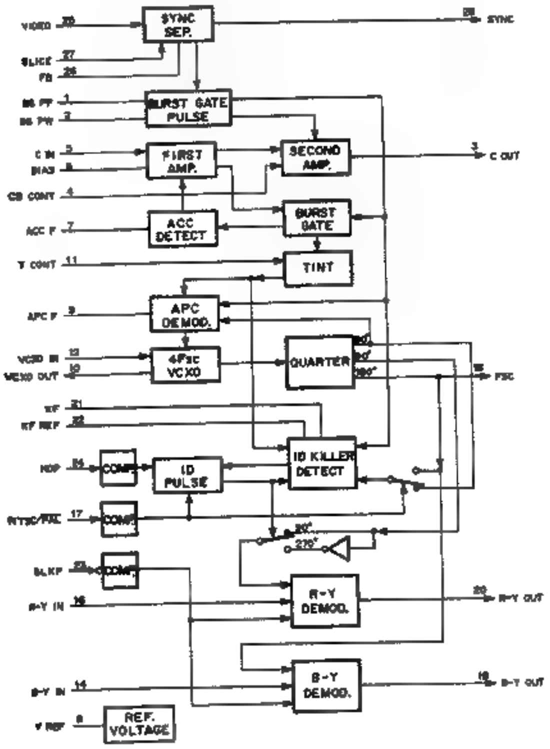
M51271FP (MITSUBISHI) FLAT PACKAGE

NTSC, PAL CHROMA DECODER
—TOP VIEW—


BG PP 1
BG PW 2
C OUT 3
CS CONT 4
C IN 5
BIAS 6
ACC F 7
V REF 8
APC F 9
VCXO OUT 10
T CONT 11
VCXO IN 12
13 GND
B-Y IN 14
28 SYNC
27 SLICE
26 FB
25 VIDEO
24 HDP
23 BLKP
22 KF REF
21 KF
20 R-Y OUT
19 B-Y OUT
18 FSC OUT
17 NTSC/PAL
16 R-Y IN
Vcc (+3V) 15

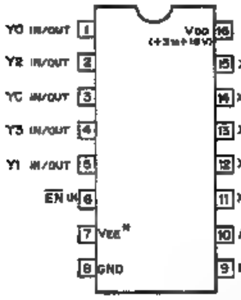

25 VIDEO
27 SLICE
26 FB
1 BG PP
2 BG PW
5 C IN
6 BIAS
4 CS CONT
7 ACC F
11 T CONT
9 APC F
10 VCXO OUT
12 VCXO IN
21 KF
22 KF REF
24 HDP
17 NTSC/PAL
23 BLKP
16 R-Y IN
14 B-Y IN
8 V REF
SYNC 28
C OUT 3
FSC 18
R-Y OUT 20
B-Y OUT 19

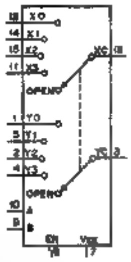
ACC F	AUTOMATIC COLOR CONTROL FILTER
APC F	AUTOMATIC PHASE CONTROL FILTER
BG PP	BURST GATE PULSE POSITION
BG PW	BURST GATE PULSE WIDTH
BIAS	CHROMA INPUT BIAS CAPACITY
BLKP	BLANKING PULSE INPUT
B-Y	B-Y SIGNAL INPUT/OUTPUT
C	CHROMA SIGNAL INPUT/OUTPUT
CS CONT	COLOR SATURATION CONTROL
FB	FEEDBACK CAPACITY OF SYNC SEPARATION
FSC	SUB-CARRIER OUTPUT (180 DEGREES)
HDP	HORIZONTAL DRIVE PULSE INPUT
KF	KILLER FILTER CAPACITY
KF REF	KILLER REFERENCE FILTER CAPACITY
NTSC/PAL	PROCESS SELECT
R-Y	R-Y SIGNAL INPUT/OUTPUT
SLICE	SLICE LEVEL INPUT OF SYNC SEPARATION
SYNC	SEPARATION SYNC SIGNAL OUTPUT
T CONT	TINT CONTROL
VCXO	VARIABLE CAPACITOR AND CRYSTAL OSCILLATOR
VIDEO	VIDEO INPUT FOR SYNC SEPARATION
V REF	REFERENCE VOLTAGE


VIDEO 25
SLICE 27
FB 26
BG PP 1
BG PW 2
C IN 5
BIAS 6
CS CONT 4
ACC F 7
T CONT 11
APC F 9
VCXO IN 12
VCXO OUT 10
KF 21
KF REF 22
HDP 24
NTSC/PAL 17
BLKP 23
R-Y IN 16
B-Y IN 14
V REF 8
SYNC SEP.
BURST GATE PULSE
FIRST AMP.
SECOND AMP.
ACC DETECT
BURST GATE
TINT
APC DEMOD.
4Fsc VCXO
QUARTER
COMP
ID PULSE
ID KILLER DETECT
90°
270°
R-Y DEMOD.
B-Y DEMOD.
REF. VOLTAGE
28 SYNC
3 C OUT
18 FSC
20 R-Y OUT
19 B-Y OUT

MC14052BF (MOTOROLA) FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
—TOP VIEW—


Y0 IN/OUT 1
Y2 IN/OUT 2
YC IN/OUT 3
Y3 IN/OUT 4
Y1 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 X2 IN/OUT
14 X1 IN/OUT
13 XC IN/OUT
12 X0 IN/OUT
11 X3 IN/OUT
10 A IN
9 B IN


12 X0
14 X1
15 X2
11 X3
OPEN
XC 13
1 Y0
5 Y1
2 Y2
4 Y3
OPEN
YC 3
10 A
9 B
EN 6
VEE 7

VEE*: VDD−VEE = +3 to +18V

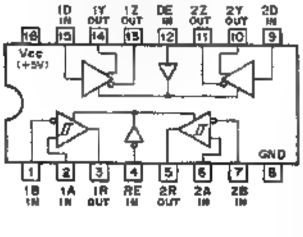
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

MC34050ML (MOTOROLA) FLAT PACKAGE

DUAL DIFFERENTIAL LINE DRIVER/RECIVER

—TOP VIEW—


1D IN
1Y OUT
1Z OUT
DE IN
2Z OUT
2Y OUT
2D IN
16 15 14 13 12 11 10 9
Vcc (+5V)
GND
1 2 3 4 5 6 7 8
1B IN
1A IN
1R OUT
RE IN
2R OUT
2A IN
2B IN

DRIVER BLOCK

INPUT D	ENABLE DE	OUTPUTS	
		Y	Z
1	1	1	0
0	1	0	1
X	0	HI-Z	HI-Z

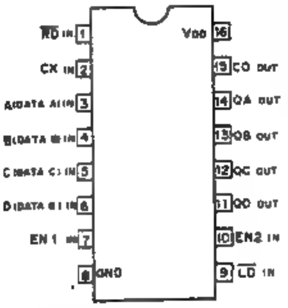
RECEIVER BLOCK

DIFFERENTIAL INPUT A-B	ENABLE RE	OUTPUT R
$V_{ID} \geq 0.2V$	0	1
$-0.2V < V_{ID} < 0.2V$	0	X
$V_{ID} \leq -0.2V$	0	0
0 OR 1	1	HI-Z

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z: HIGH IMPEDANCE

MC74HC163AF (MOTOROLA) FLAT PACKAGE
SN74HC163ANS (TI) FLAT PACKAGE

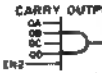
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
—TOP VIEW—


RD IN 1
CK IN 2
A(DATA A) IN 3
B(DATA B) IN 4
C(DATA C) IN 5
D(DATA D) IN 6
EN 1 IN 7
8 GND
VDD 16
15 CO OUT
14 QA OUT
13 QB OUT
12 QC OUT
11 QD OUT
10 EN2 IN
9 LD IN

MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

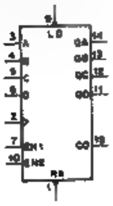
CARRY OUTPUT "CO"


QA
QB
QC
QD
EN2
CO

CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

NOTE :

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT/FCT	+5V

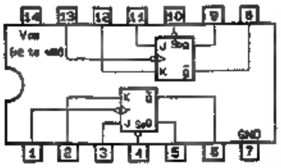

9
LD
3 A
4 B
5 C
6 D
2
7 EN1
10 EN2
QA 14
QB 13
QC 12
QD 11
CO 15
RD
1

COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

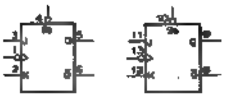
MC74HC113F (MOTOROLA) FLAT PACKAGE

C-MOS J-K FLIP-FLOP WITH SET
—TOP VIEW—


14
13
12
11
10
9
8
Vcc
(+2 to +6V)
J
Sp
K
Q
Q̄
K
Q
J
SD
Q̄
GND
1
2
3
4
5
6
7

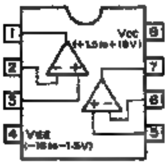
INPUTS				OUTPUTS	
So	CK	J	K	Q	Q̄
0	X	X	X	1	0
1	↓	0	0	NO CHANGE	
1	↓	0	1	0	1
1	↓	1	0	1	0
1	↓	1	1	TOGGLE	
1	1	X	X	NO CHANGE	
1	0	X	X	NO CHANGE	
1	↑	X	X	NO CHANGE	

0; LOW LEVEL X; DON'T CARE
1; HIGH LEVEL


4
So
1
3
2
J
K
Q
Q̄
5
6
10
So
11
13
12
J
K
Q
Q̄
9
8

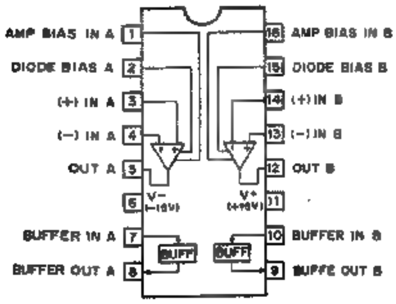
NJM082M (JRC) FLAT PACKAGE
TL082CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—


1
2
3
4
Vcc
(+1.5 to +18V)
VEE
(−18 to −1.5V)
8
7
6
5

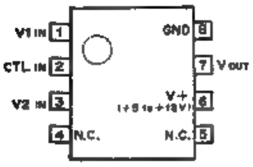
NJM13700M (JRC) FLAT PACKAGE

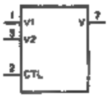
DUAL OPERATIONAL TRANSCONDUCTANCE AMPLIFIER
—TOP VIEW—

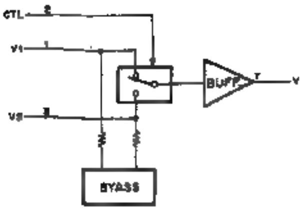

AMP BIAS IN A 1
DIODE BIAS A 2
(+) IN A 3
(−) IN A 4
OUT A 5
6 V− (−18V)
BUFFER IN A 7
BUFFER OUT A 8
16 AMP BIAS IN B
15 DIODE BIAS B
14 (+) IN B
13 (−) IN B
12 OUT B
11 V+ (+18V)
10 BUFFER IN B
9 BUFFE OUT B
BUFF
BUFF

NJM2233BM (JRC) FLAT PACKAGE

2-INPUT VIDEO SIGNAL SWITCH
—TOP VIEW—


V1 IN 1
CTL IN 2
V2 IN 3
4 N.C.
GND 8
7 V OUT
V+ (+5 to +12V) 6
N.C. 5


1 V1
3 V2
2 CTL
V 7

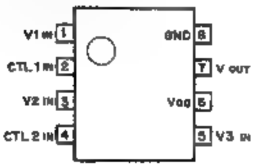

CTL 2
V1 1
V2 3
BUFF
7 V
BYASS

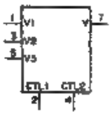
CTL	V
0	V1
1	V2

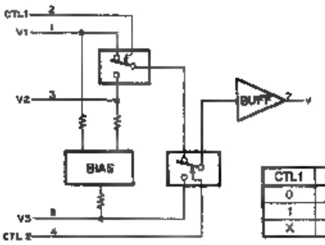
0 ; LOW LEVEL
1 ; HIGH LEVEL

NJM2234M (JRC) FLAT PACKAGE
NJM2245M (JRC) FLAT PACKAGE

3-INPUT VIDEO SIGNAL SWITCH
—TOP VIEW—


V1 IN 1
CTL 1 IN 2
V2 IN 3
CTL 2 IN 4
GND 8
7 V OUT
Vcc 6
5 V3 IN


1 V1
3 V2
5 V3
V 7
CTL1 2
CTL2 4


CTL1 2
V1 1
V2 3
BIAS
BUFF
7 V
V3 5
CTL 2 4

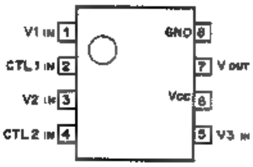
CTL1	CTL2	V
0	0	V1
1	0	V2
X	1	V3

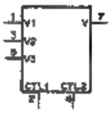
0 : LOW LEVEL
1 : HIGH LEVEL
X : DONT CARE

TYPE	GAIN	Vcc
NJM2234M	0 dB	+5 to +12V
NJM2245M	+6 dB	+6.5 to +13V

NJM2235M (JRC) FLAT PACKAGE
NJM2246M (JRC) FLAT PACKAGE

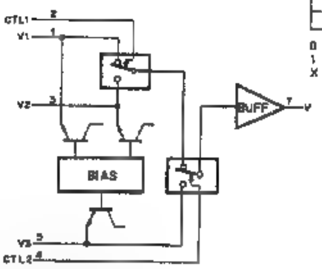
3-INPUT VIDEO SIGNAL SWITCH
—TOP VIEW—


V1 IN 1
CTL 1 IN 2
V2 IN 3
CTL 2 IN 4
GND 8
7 V OUT
Vcc 6
5 V3 IN


1 V1
3 V2
5 V3
V 7
CTL1 2
CTL2 4

CTL1	CTL2	V
0	0	V1
1	0	V2
X	1	V3

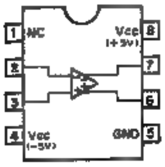
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE


CTL1 2
V1 1
V2 3
BIAS
BUFF
7 V
V3 5
CTL2 4

TYPE	GAIN	Vcc
NJM2235M	0dV	+ 5 to + 15V
NJM2246D	+ 6dV	+ 4.75 to + 13V
NJM2246M		

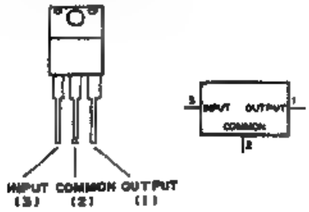
NJM360M (JRC) FLAT PACKAGE

HIGH SPEED VOLTAGE COMPARATOR
(TTL OUTPUT)
—TOP VIEW—


1 NC
2
3
4 VEE (−5V)
Vcc (+5V) 8
7
6
GND 5

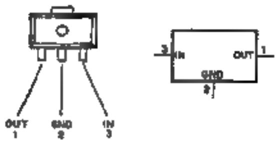
NJM7805FA (JRC) +5V (1 A)
NJM7809FA (JRC) +9V (1 A)
NJM78M09FA (JRC) +9V (0.5 A)

POSITIVE VOLTAGE REGULATOR
—TOP VIEW—


3
INPUT
OUTPUT
1
COMMON
2
INPUT (3)
COMMON (2)
OUTPUT (1)

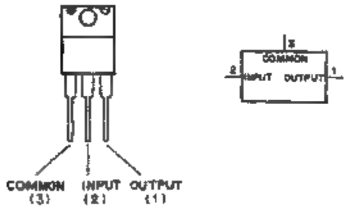
NJM78L05UA (JRC) +5 V (100 mA)

POSITIVE VOLTAGE REGULATOR
—TOP VIEW—


3
IN
OUT
1
GND
2
OUT 1
GND 2
IN 3

NJM7905FA (JRC) −5V (1 A)
NJM7909FA (JRC) −9V (1 A)

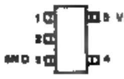
NEGATIVE VOLTAGE REGULATOR
—TOP VIEW—

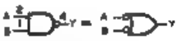

3
COMMON
2
INPUT
OUTPUT
1
COMMON (3)
INPUT (2)
OUTPUT (1)

SC7S00F (MOTOROLA) CHIP PACKAGE
TC7S00F (TOSHIBA) CHIP PACKAGE

C-MOS 2-INPUT NAND GATE

(SCALE 6/1)
—TOP VIEW—


1
5 VDD
2
GND 3
4



$Y=\overline{A\cdot B}=\overline{A}+\overline{B}$

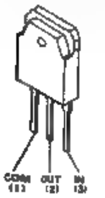
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

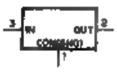
TYPE	VDD
7S00F 7S00FU	+2 to +6V
4S11F 4SU11F	+3 to +18V
7SH00FU	+2 to +5.5V

SI-3052V (SANKEN)
SI-3522V (SANKEN)

POSITIVE VOLTAGE REGULATOR (2A)

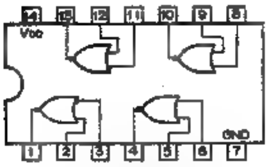

COM (1)
OUT (2)
IN (3)

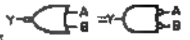
5V	SI – 3052V
6.2V	SI – 3522V
12V	SI – 3122V


3
IN
OUT
2
COMMON
1

SN74HC02ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATES
—TOP VIEW—


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y=\overline{A+B}=\overline{A}\cdot\overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

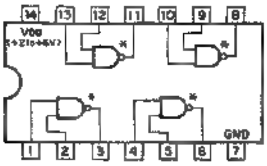
0 : LOW LEVEL
1 ; HIGH LEVEL

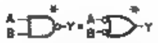
NOTE :

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT	+5V

SN74HC03NS (TI) FLAT PACKAGE

C-MOS 2-INPUT POSITIVE-NAND GATE WITH OPEN-DRAIN
—TOP VIEW—


14
13
12
11
10
9
8
VDD
(+2 to +6V)
*
GND
1
2
3
4
5
6
7



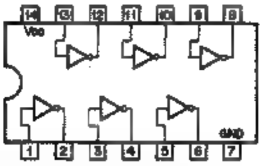
$Y=\overline{A\cdot B}=\overline{A}+\overline{B}$

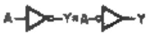
A	B	Y
0	0	HI-Z
0	1	HI-Z
1	0	HI-Z
1	1	0

0; LOW LEVEL
1; HIGH LEVEL
HI-Z; HIGH IMPEDANCE

SN74HC04ANS (TI) FLAT PACKAGE

C-MOS HEX INVERTERS
—TOP VIEW—


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y=\overline{A}$

A	Y
0	1
1	0

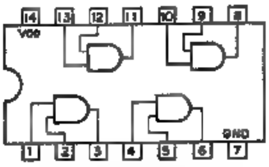
0 ; LOW LEVEL
1 ; HIGH LEVEL

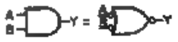
NOTE :

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC08ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT AND GATES
—TOP VIEW—


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y=A\cdot B=\overline{\overline{A}+\overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

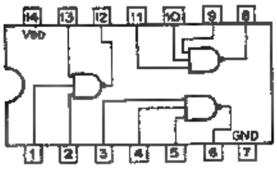
0 ; LOW LEVEL
1 ; HIGH LEVEL

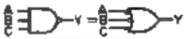
NOTE :

TYPE	VDD
TC74AC08 TYPE MC74ACT08M	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6v

SN74HC10ANS (TI) FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
—TOP VIEW—


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{ABC} = \bar{A}+\bar{B}+\bar{C}$

A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

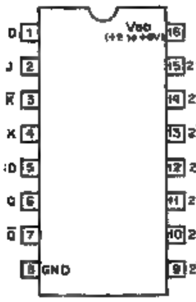
0 ; LOW LEVEL
1 ; HIGH LEVEL

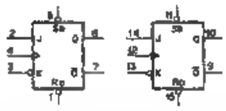
NOTE :

TYPE	VDD
TC40H	+2 to +8V
OTHERS	+2 to +6V

SN74HC109ANS (TI) FLAT PACKAGE

C-MOS J-K FLIP-FLOP WITH DIRECT SET/RESET
—TOP VIEW—


VDD (+2 to +6V)
16
15 2RD
14 2J
13 2K̄
12 2CK
11 2SD
10 2Q
9 2Q̄
1
2 J
3 K̄
4
5
6 Q
7 Q̄
8 GND

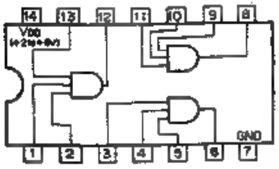

SD
J
Q
K
Q̄
RD
2
4
3
5
6
7
1
14
12
13
11
10
9
15

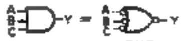
INPUTS					OUTPUTS	
S_D	R_D	CK	J	$\bar{K}$	Q_{n+1}	$\overline{Q_{n+1}}$
0	1	X	X	X	1	0
1	0	X	X	X	0	1
0	0	X	X	X	1*	1*
1	1	↑	0	1	Qn	$\overline{Qn}$
			0	0	0	1
			1	1	1	0
			1	0	$\overline{Qn}$	Qn
1	1	0	X	X	Qn	$\overline{Qn}$

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
*; NONSTABLE

SN74HC11ANS (TI) FLAT PACKAGE

C-MOS 3-INPUT POSITIVE-AND GATE


14
13
12
11
10
9
8
VDD (+2 to +6V)
GND
1
2
3
4
5
6
7



$Y = A \cdot B \cdot C = \overline{\bar{A}+\bar{B}+\bar{C}}$

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

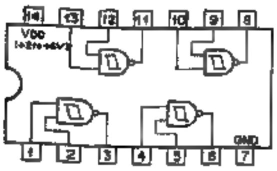
0 ;LOW LEVEL
1 ;HIGH LEVEL

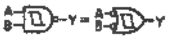
NOTE :

TYPE	VDD
TC74VHC11	+2V to +5.5V
OTHER TYPES	+2V to +6V

SN74HC132ANS (TI) FLAT PACKAGE

C-MOS 2-INPUT NAND SCHMITT TRIGGER
—TOP VIEW—


14
13
12
11
10
9
8
VDD (+2 to +6V)
GND
1
2
3
4
5
6
7



$Y = \overline{AB} = \bar{A}+\bar{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

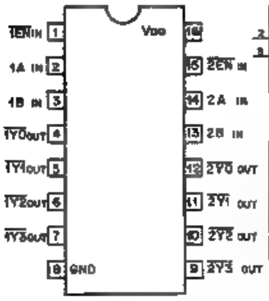
0 ; LOW LEVEL
1 ; HIGH LEVEL

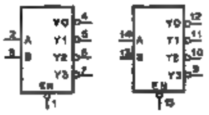
NOTE :

TYPE	VDD
HC	+2 to +6V
VHC	+2 to +5.5V

SN74HC139ANS (TI) FLAT PACKAGE

C-MOS DUAL 2-TO-4 DECODER/DEMULTIPLEXER
—TOP VIEW—


1EN IN 1
1A IN 2
1B IN 3
1Y0 OUT 4
1Y1 OUT 5
1Y2 OUT 6
1Y3 OUT 7
8 GND
VDD 16
15 2EN IN
14 2A IN
13 2B IN
12 2Y0 OUT
11 2Y1 OUT
10 2Y2 OUT
9 2Y3 OUT


2
3
A
B
Y0
Y1
Y2
Y3
4
5
6
7
EN
1
14
13
A
B
Y0
Y1
Y2
Y3
12
11
10
9
EN
15

INPUTS			OUTPUTS			
EN	B	A	Y3	Y2	Y1	Y0
0	0	0	1	1	1	0
0	0	1	1	1	0	1
0	1	0	1	0	1	1
0	1	1	0	1	1	1
1	X	X	1	1	1	1

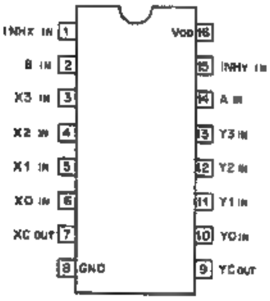
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

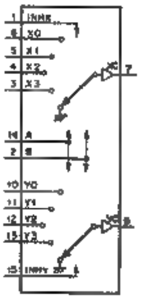
NOTE :

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT	+5V

SN74HC153ANS (TI) FLAT PACKAGE

C-MOS DUAL 4-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
—TOP VIEW—


INHX IN 1
B IN 2
X3 IN 3
X2 IN 4
X1 IN 5
X0 IN 6
XC OUT 7
8 GND
VDD 16
15 INHY IN
14 A IN
13 Y3 IN
12 Y2 IN
11 Y1 IN
10 Y0 IN
9 YC OUT


1 INHX
6 X0
5 X1
4 X2
3 X3
XC 7
14 A
2 B
10 Y0
11 Y1
12 Y2
13 Y3
YC 9
15 INHY

NOTE :

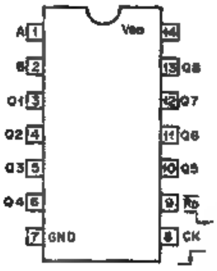
TYPE	VDD
40H	+2 to +8V
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT/FCT	+5V

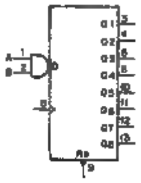
CONTROL IN			ON CHANNEL
INH	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	GND

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC164ANS (TI) FLAT PACKAGE

C-MOS 8-BIT SERIAL-IN/PARALLEL-OUT SHIFT REGISTER
—TOP VIEW—


A 1
B 2
Q1 3
Q2 4
Q3 5
Q4 6
7 GND
VDD 14
13 Q8
12 Q7
11 Q6
10 Q5
9 RD
8 CK

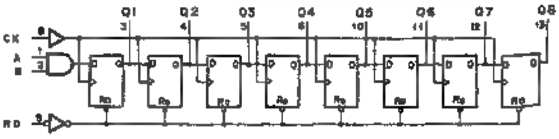

A
B
1
2
8
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
3
4
5
6
10
11
12
13
RD
9

INPUTS				OUTPUTS			
R_D	CK	A	B	Q1	Q2	----	Q8
0	X	X	X	0	0	0	0
1	0	X	X	Q1o	Q2o	----	Q8o
1	↑	1	1	1	Q1n	----	Q7n
1	↑	0	X	0	Q1n	----	Q7n
1	↑	X	0	0	Q1n	----	Q7n

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

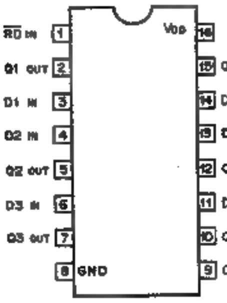
NOTE :

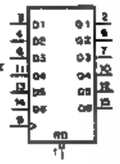
TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V
HCT	+5V


Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
3
4
5
6
10
11
12
13
CK
8
A
B
1
2
D
Q
RD
RD
9

SN74HC174ANS (TI) FLAT PACKAGE

C-MOS D-TYPE FLIP-FLOP WITH RESET
—TOP VIEW—

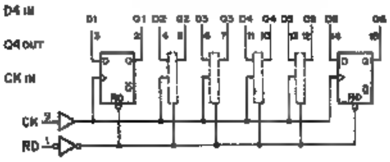

RD IN 1
Q1 OUT 2
D1 IN 3
D2 IN 4
Q2 OUT 5
D3 IN 6
Q3 OUT 7
8 GND
9 CK IN
10 Q4 OUT
11 D4 IN
12 Q5 OUT
13 D5 IN
14 D6 IN
15 Q6 OUT
16 VDD


D1
D2
D3
D4
D5
D6
Q1
Q2
Q3
Q4
Q5
Q6
RD

EACH FLIP-FLOP

INPUTS			OUT
RD	CK	D	Q
0	X	X	0
1	↑	0	0
1	↑	1	1
1	0	X	Q0

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

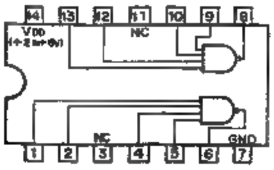

D1
Q1
D2
Q2
D3
Q3
D4
Q4
D5
Q5
D6
Q6
CK
RD

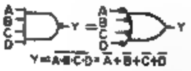
NOTE :

TYPE	VDD
74AC	+3.3 to +5V
74ACT	+5V
74HC	+2 to +6V
TC74AC174	+2 to +5.5V

SN74HC20ANS (TI) FLAT PACKAGE

C-MOS 4-INPUT POSITIVE-NAND GATE
—TOP VIEW—


VDD
(+2 to +6V)
NC
NC
GND



$Y = \overline{A \cdot B \cdot C \cdot D} = \overline{A} + \overline{B} + \overline{C} + \overline{D}$

A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
⋮	⋮	⋮	⋮	⋮
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

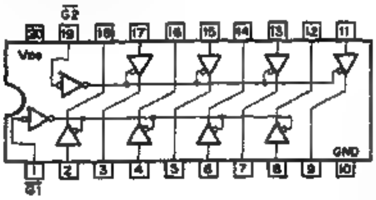
0; LOW LEVEL
1; HIGH LEVEL

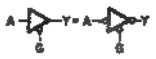
NOTE :

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

SN74HC244ANS (TI) FLAT PACKAGE
TC74VHC244F (TOSHIBA) FLAT PACKAGE

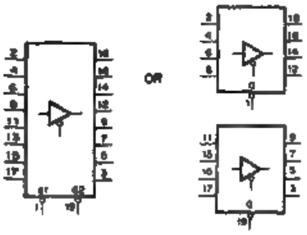
C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
—TOP VIEW—


G2
VDD
GND
G1



G	A	Y
0	0	0
0	1	1
X	X	HI-Z

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE

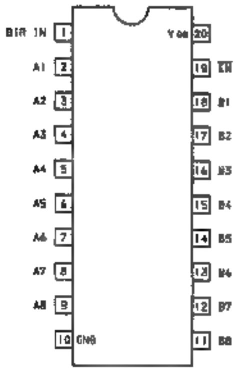


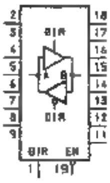
NOTE :

TYPE	VDD
AC HC 40H	+2 to +6V
ACT BCT FCT HCT	+5V
TC74AC244 TYPE TC74VHC244	+2 to +5.5V

SN74HC245ANS (TI) FLAT PACKAGE

C-MOS BILATERAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS
—TOP VIEW—


DIR IN 1
A1 2
A2 3
A3 4
A4 5
A5 6
A6 7
A7 8
A8 9
10 GND
20 VDD
19 EN IN
18 B1
17 B2
16 B3
15 B4
14 B5
13 B6
12 B7
11 B8

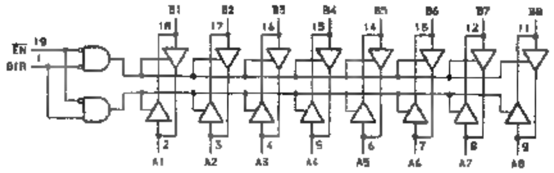

DIR
A
B
DIR
DIR
EN

EN	DIR	OPERATION
0	0	B→A
0	1	A→B
1	X	HI-Z

0:LOW LEVEL
1:HIGH LEVEL
X:DON'T CARE
HI-Z:HIGH IMPEDANCE

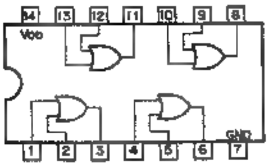
NOTE :

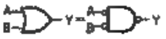
TYPE	VDD
AC HC	+2 to +6V
ABT ACT BCT HCT	+5V
TC74AC245F TC74AC245P TC74VHC245	+2 to +5.5V
74LVT	+2.7 to +3.6V


B1
B2
B3
B4
B5
B6
B7
B8
EN
DIR
A1
A2
A3
A4
A5
A6
A7
A8

SN74HC32ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT OR GATES
—TOP VIEW—





$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

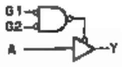
0:LOW LEVEL
1:HIGH LEVEL

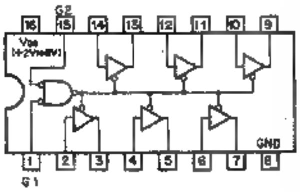
NOTE :

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

SN74HC365ANS (TI) FLAT PACKAGE

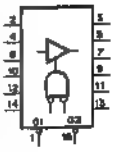
C-MOS 3-STATE BUS DRIVER
—TOP VIEW—




G2
VDD
(+2V to +6V)
GND
G1

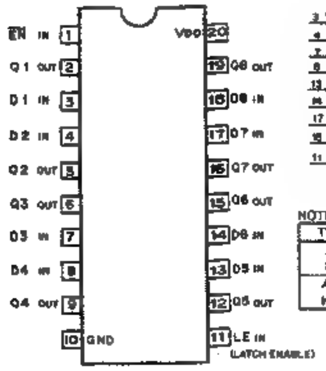
G1	G2	A	Y
0	0	0	0
0	0	1	1
0	1	X	HI-Z
1	0	X	HI-Z
1	1	X	HI-Z

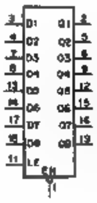
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE



SN74HC373ANS (TI) FLAT PACKAGE

C-MOS 3-STATE OUTPUTS OCTAL LATCHES
—TOP VIEW—


EN IN 1
Q1 OUT 2
D1 IN 3
D2 IN 4
Q2 OUT 5
Q3 OUT 6
D3 IN 7
D4 IN 8
Q4 OUT 9
10 GND
VDD 20
19 Q8 OUT
18 D8 IN
17 D7 IN
16 Q7 OUT
15 Q6 OUT
14 D6 IN
13 D5 IN
12 Q5 OUT
11 LE IN (LATCH ENABLE)

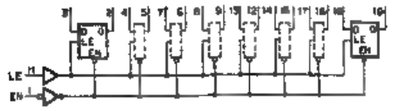

D1
D2
D3
D4
D5
D6
D7
D8
LE
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
EN

INPUTS			OUT
EN	D	LE	Q
0	1	1	1
0	0	1	0
0	X	0	Q0
1	X	X	HI-Z

HI-Z ; HIGH IMPEDANCE
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

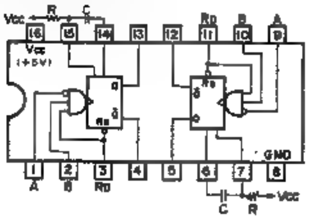
NOTE :

TYPE	VDD
AC HC	+2 to +6V
ACT HCT	+5V


LE
EN
LE
EN
D
Q

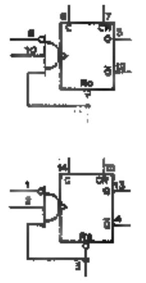
SN74LS123NS (TI) FLAT PACKAGE

TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS WITH DIRECT RESET
—TOP VIEW—

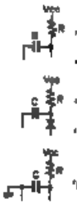

Vcc
R
C
RD
B
A
Vcc (+5V)
GND
A
B
RD
C
R
Vcc

INPUTS			OUTPUTS	
RD	A	B	Q	$\bar{Q}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⎍	⊔
1	↓	1	⎍	⊔
↑	0	1	⎍	⊔

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE


C
CR
RD
Q
$\bar{Q}$

OUTPUT PULSE WIDTH



'123 ; $T_W = 0.28\left(1+\frac{700}{R}\right)CR$

'L123; $T_W = 0.35\left(1+\frac{700}{R}\right)CR$

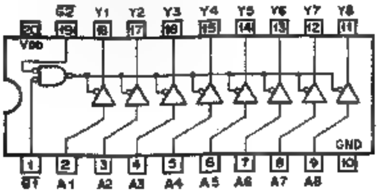
'123 ; $T_W = 0.25\left(1+\frac{700}{R}\right)CR$

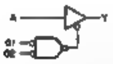
'L123; $T_W = 0.28\left(1+\frac{700}{R}\right)CR$

'LS123; $T_W = 0.45CR$

SN74HC541ANS (TI) FLAT PACKAGE
TC74VHC541F (TOSHIBA) FLAT PACKAGE

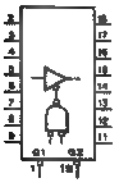
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS
—TOP VIEW—


20
$\overline{G2}$ 19
Y1 18
Y2 17
Y3 16
Y4 15
Y5 14
Y6 13
Y7 12
Y8 11
VDD
GND
1 $\overline{G1}$
2 A1
3 A2
4 A3
5 A4
6 A5
7 A6
8 A7
9 A8
10



G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

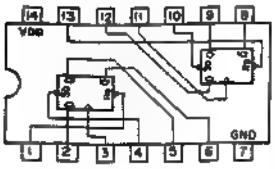


NOTE :

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V
ABT/ACT/BCT/HCT	+5V

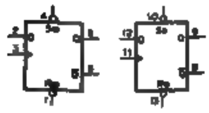
SN74HC74ANS (TI) FLAT PACKAGE

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
—TOP VIEW—



INPUTS				OUTPUTS	
SD	RD	CK	D	Qn+1	$\overline{Q}$n+1
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	⎍	1	1	0
1	1	⎍	0	0	1
1	1	0	X	Qn	$\overline{Q}$n

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

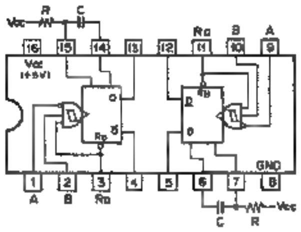


NOTE :

TYPE	VDD
HCT/ACT	+5V
TC74AC/VHC	+2 to +5.5V
OTHERS	+2 to +6V

SN74LS221NS (TI) FLAT PACKAGE

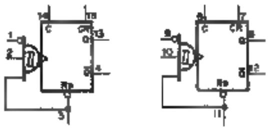
TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT
—TOP VIEW—


Vcc
R
C
RD
B
A
Vcc (+5V)
GND
A
B
RD
C
R
Vcc

INPUTS			OUTPUTS	
RD	A	B	Q	$\bar{Q}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⎍	⊔
1	↓	1	⎍	⊔
↑	0	1	⎍	⊔

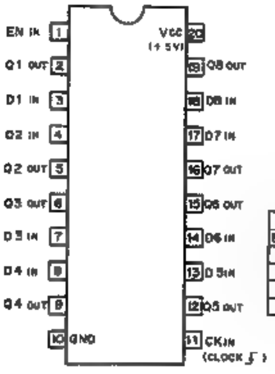
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

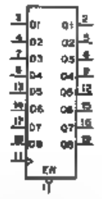
OUTPUT PULSE WIDTH ≐ 0.7CR



SN74ALS374ANS (TI) FLAT PACKAGE

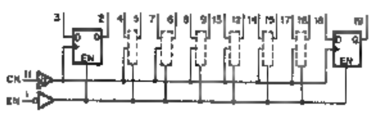
TTL 3-STATE OUTPUTS OCTAL D-TYPE FLIP-FLOP
—TOP VIEW—


EN IN 1
Q1 OUT 2
D1 IN 3
D2 IN 4
Q2 OUT 5
Q3 OUT 6
D3 IN 7
D4 IN 8
Q4 OUT 9
10 GND
Vcc (+5V) 20
19 Q8 OUT
18 D8 IN
17 D7 IN
16 Q7 OUT
15 Q6 OUT
14 D6 IN
13 D5 IN
12 Q5 OUT
11 CK IN (CLOCK ⎍)


D1
D2
D3
D4
D5
D6
D7
D8
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
EN

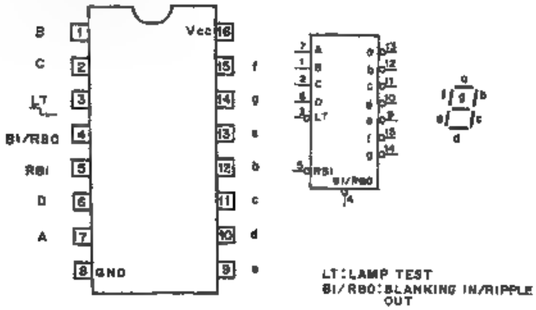
INPUTS			OUT
EN	D	CK	Q
0	1	⎍	1
0	0	⎍	0
0	X	0	Q0
1	X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



SN74LS247NS (TI) FLAT PACKAGE

TTL BCD-TO-SEVEN-SEGMENT DECODER/DRIVER
(OPEN COLLECTOR OUTPUT)
—TOP VIEW—


B 1
C 2
LT 3
BI/RBO 4
RBI 5
D 6
A 7
8 GND
Vcc 16
15 f
14 g
13 a
12 b
11 c
10 d
9 e
A B C D LT RBI BI/RBO
a b c d e f g

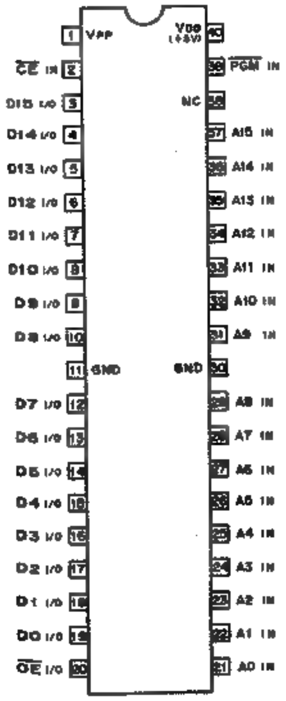
LT : LAMP TEST
BI/RBO : BLANKING IN/RIPPLE BLANKING OUT
RBI : RIPPLE BLANKING IN

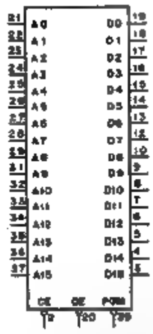
INPUTS						BI/RBO	OUTPUTS							DISPLAY	DECIMAL
LT	RBI	D	C	B	A		a	b	c	d	e	f	g	HEXADECIMAL	
1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
1	X	0	0	0	1	1	1	0	0	1	1	1	1	1	1
1	X	0	0	1	0	1	0	0	1	0	0	1	0	2	2
1	X	0	0	1	1	1	0	0	0	0	1	1	0	3	3
1	X	0	1	0	0	1	1	0	0	1	1	0	0	4	4
1	X	0	1	0	1	1	0	1	0	0	1	0	0	5	5
1	X	0	1	1	0	1	0	1	0	0	0	0	0	6	6
1	X	0	1	1	1	1	0	0	0	1	1	1	1	7	7
1	X	1	0	0	0	1	0	0	0	0	0	0	0	8	8
1	X	1	0	0	1	1	0	0	0	0	1	0	0	9	9
1	X	1	0	1	0	1	1	1	1	0	0	1	0	c	10
1	X	1	0	1	1	1	1	1	0	0	1	1	0	ɔ	11
1	X	1	1	0	0	1	1	0	1	1	1	0	0	u	12
1	X	1	1	0	1	1	0	1	1	0	1	0	0	Ξ	13
1	X	1	1	1	0	1	1	1	1	0	0	0	0	ᴇ	14
1	X	1	1	1	1	1	1	1	1	1	1	1	1	BLANK	15
X	X	X	X	X	X	0	1	1	1	1	1	1	1	BLANK	15
1	0	0	0	0	0	0*	1	1	1	1	1	1	1	BLANK	15
0	X	X	X	X	X	1	0	0	0	0	0	0	0	8	8
1	1	0	0	0	0	1	1	1	1	1	1	1	1	BLANK	15

* When RBI and inputs A, B, C, and D are at a low "0" level with the LT input high "H", all segment outputs go off ("1") and the RBO goes to a low "0" level (response condition).

TMS27C210A-12JL (TI)

C-MOS 1M (64K×16)-BIT ERASABLE PROM
—TOP VIEW—

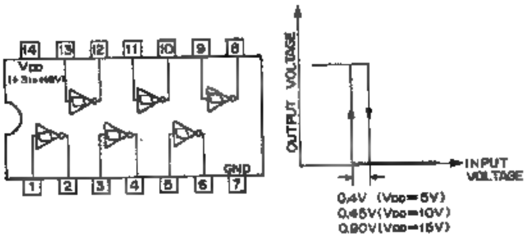

1 VPP
CE IN 2
D15 I/O 3
D14 I/O 4
D13 I/O 5
D12 I/O 6
D11 I/O 7
D10 I/O 8
D9 I/O 9
D8 I/O 10
11 GND
D7 I/O 12
D6 I/O 13
D5 I/O 14
D4 I/O 15
D3 I/O 16
D2 I/O 17
D1 I/O 18
D0 I/O 19
OE I/O 20
VDD (+5V) 40
39 PGM IN
NC 38
37 A15 IN
36 A14 IN
35 A13 IN
34 A12 IN
33 A11 IN
32 A10 IN
31 A9 IN
GND 30
29 A8 IN
28 A7 IN
27 A6 IN
26 A5 IN
25 A4 IN
24 A3 IN
23 A2 IN
22 A1 IN
21 A0 IN


21 A0
22 A1
23 A2
24 A3
25 A4
26 A5
27 A6
28 A7
29 A8
31 A9
32 A10
33 A11
34 A12
35 A13
36 A14
37 A15
D0 19
D1 18
D2 17
D3 16
D4 15
D5 14
D6 13
D7 12
D8 10
D9 9
D10 8
D11 7
D12 6
D13 5
D14 4
D15 3
CE 2
OE 20
PGM 39

A0 – A15 : ADDRESS INPUT
$\overline{\text{CE}}$: CHIP ENABLE INPUT
D0 – D15 : DATA INPUT/OUTPUT
$\overline{\text{OE}}$: OUTPUT ENABLE INPUT
$\overline{\text{PGM}}$: PROGRAM ENABLE INPUT
VPP : PROGRAM VOLTAGE INPUT
(NORMAL : +5V
PROGRAM : +13V)

TC4584BF (TOSHIBA) FLAT PACKAGE

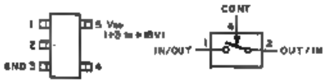
C-MOS SCHMITT TRIGGER INVERTER
—TOP VIEW—


14 13 12 11 10 9 8
VDD (+3 to +18V)
GND
1 2 3 4 5 6 7
OUTPUT VOLTAGE
INPUT VOLTAGE
0.4V (VDD=5V)
0.45V (VDD=10V)
0.90V (VDD=15V)

TC4S66F (TOSHIBA) CHIP PACKAGE

C-MOS BILATERAL ANALOG SWITCH

(SCALE6/1)
—TOP VIEW—

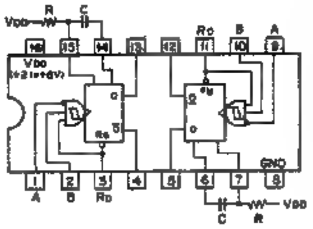

1
2
GND 3
5 VDD (+3 to +18V)
4
CONT
4
1
2
IN/OUT
OUT/IN

CONT	SWITCH
0	OFF
1	ON

0 : LOW LEVEL
1 : HIGH LEVEL

TC74HC221AF (TOSHIBA) FLAT PACKAGE

C-MOS MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT
—TOP VIEW—


R C
VDD
RD B A
16 15 14 13 12 11 10 9
VDD (+2 to +6V)
Q
Q̄
RD
GND
1 2 3 4 5 6 7 8
A B RD
C R VDD

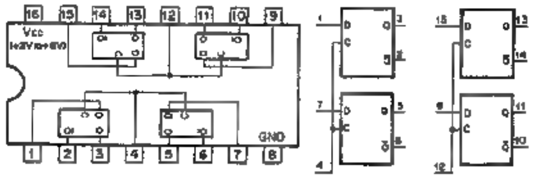
INPUTS			OUTPUTS	
RD	A	B	Q	$\overline{\text{Q}}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⊓	⊔
1	↓	1	⊓	⊔
↑	0	1	⊓	⊔

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

OUTPUT PULSE WIDTH = 0.7CR

TC74HC375AF (TOSHIBA) FLAT PACKAGE

C-MOS 4-BIT BISTABLE LATCHES
—TOP VIEW—

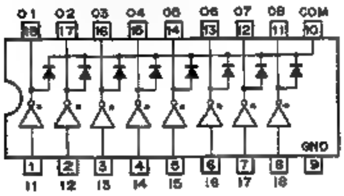

16 15 14 13 12 11 10 9
Vcc (+2V to +6V)
GND
1 2 3 4 5 6 7 8
1 D Q 2
C Q̄ 3
15 D Q 13
C Q̄ 14
7 D Q 5
4 C Q̄ 6
9 D Q 11
12 C Q̄ 10

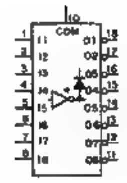
D	C	Q	$\overline{\text{Q}}$
0	1	0	1
1	1	1	0
X	0	Q0	$\overline{\text{Q0}}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

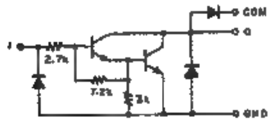
TD62083F (TOSHIBA) FLAT PACKAGE

DARLINGTON DRIVER
—TOP VIEW—


O1
O2
O3
O4
O5
O6
O7
O8
COM
GND
I1
I2
I3
I4
I5
I6
I7
I8

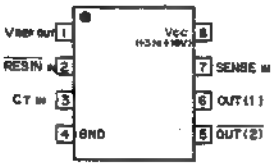


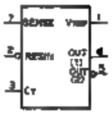
*; OPEN COLLECTOR

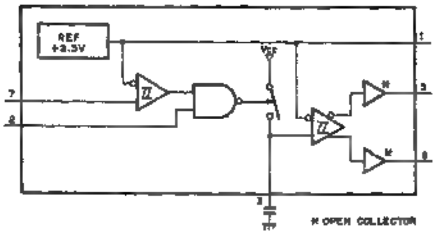

I
2.7k
7.2k
3k
COM
O
GND

TL7705CPS-B (TI) FLAT PACKAGE

POWER VOLTAGE SUPERVISOR
—TOP VIEW—


VREF OUT
RESIN IN
CT IN
GND
Vcc
SENSE IN
OUT(1)
OUT(2)

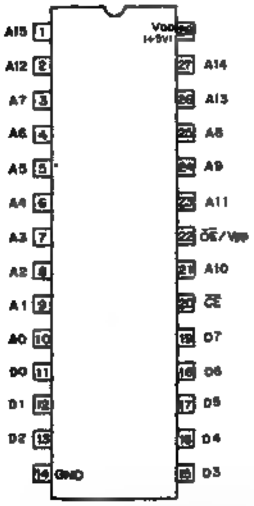

SENSE
RESIN
CT
VREF
OUT (1)
OUT (2)

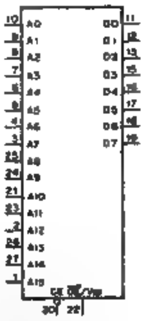


* OPEN COLLECTOR

TMS27C512-15JL (TI)

C-MOS 512K (65,536×8=524,288)-BIT ERASABLE PROM
—TOP VIEW—

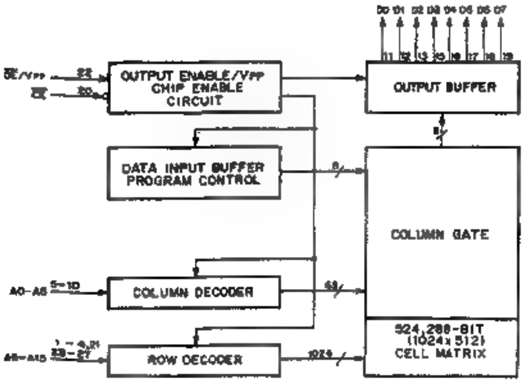

A15
A12
A7
A6
A5
A4
A3
A2
A1
A0
D0
D1
D2
GND
VDD (+5V)
A14
A13
A8
A9
A11
OE/VPP
A10
CE
D7
D6
D5
D4
D3



A0 – A15 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
D0 – D7 : DATA OUTPUTS
OE : OUTPUT ENABLE INPUT
VPP : PROGRAM POWER SUPPLY

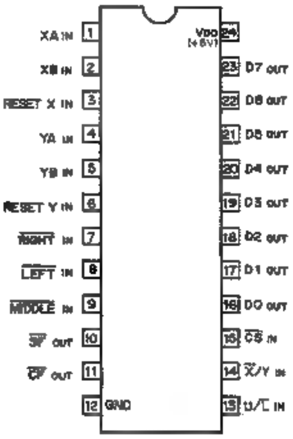
A_n	CE	$\overline{OE}/V_{PP}$	V_{DD}	D_n	FUNCTION
A_{IN}	0	0	+5V	D_{OUT}	READ
A_{IN}	0	1	+5V	HI-Z	OUTPUT DISABLE
X	1	X	+5V	HI-Z	STANDBY
A_{IN}	0	+12.5V	+6V	D_{IN}	PGM
A_{IN}	0	0	+6V	D_{OUT}	PGM VERIFY
X	1	+12.5V	+6V	HI-Z	PGM INH

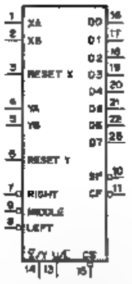
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE


OE/VPP
CE
OUTPUT ENABLE/VPP CHIP ENABLE CIRCUIT
OUTPUT BUFFER
D0 D1 D2 D3 D4 D5 D6 D7
DATA INPUT BUFFER PROGRAM CONTROL
COLUMN GATE
A0–A6
COLUMN DECODER
A6–A15
ROW DECODER
524,288-BIT (1024×512) CELL MATRIX

UPD4701AC (NEC)

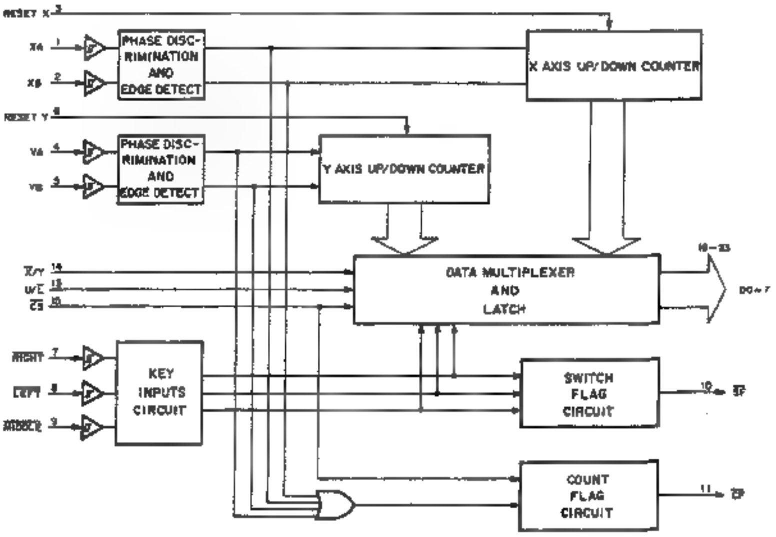
C-MOS INCREMENTAL ROTARY ENCODER
—TOP VIEW—


XA IN
XB IN
RESET X IN
YA IN
YB IN
RESET Y IN
RIGHT IN
LEFT IN
MIDDLE IN
SF OUT
CF OUT
GND
VDD (+5V)
D7 OUT
D6 OUT
D5 OUT
D4 OUT
D3 OUT
D2 OUT
D1 OUT
D0 OUT
CS IN
X/Y IN
U/L IN



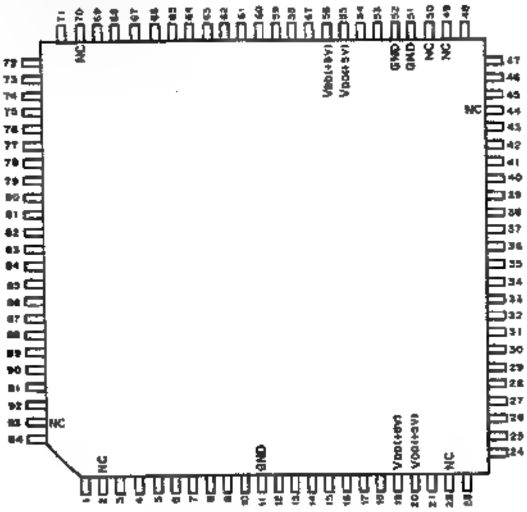
$\overline{CS}$; CHIP SELECT
$\overline{X}/Y$; X/Y COUNTER SELECT
XA,YA ; INPUT A PHASE
XB,YB ; INPUT B PHASE
RIGHT,LEFT,MIDDLE ; SWITCH INPUT FOR INTERNAL STATUS

$U/\overline{L}$; UPPER/LOWER BYTE SELECT
D0~D7 ; DATA
CF ; COUNT FLAG
SF ; SWITCH FLAG
RESET X ; COUNTER RESET
RESET Y ; COUNTER RESET

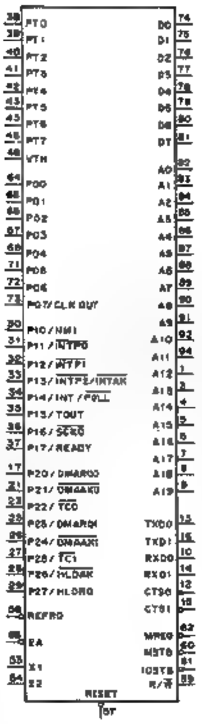

RESET X
XA
XB
PHASE DISC-RIMINATION AND EDGE DETECT
X AXIS UP/DOWN COUNTER
RESET Y
YA
YB
Y AXIS UP/DOWN COUNTER
X/Y
U/L
CS
DATA MULTIPLEXER AND LATCH
D0~7
RIGHT
LEFT
MIDDLE
KEY INPUTS CIRCUIT
SWITCH FLAG CIRCUIT
SF
COUNT FLAG CIRCUIT
CF

UPD70320GJ-8-5BG (NEC)

C-MOS SINGLE CHIP 16/8-BIT MICROCOMPUTER
—TOP VIEW—



NC
VDD(+5V)
VDD(+5V)
GND
GND
NC
NC
NC
NC
NC
GND
VDD(+5V)
VDD(+5V)
NC



38 PT0
39 PT1
40 PT2
41 PT3
42 PT4
43 PT5
45 PT6
46 PT7
48 VTH
64 P00
65 P01
66 P02
67 P03
68 P04
71 P05
72 P06
73 P07/CLK OUT
30 P10/NMI
31 P11/INTP0
32 P12/INTP1
33 P13/INTP2/INTAK
34 P14/INT/POLL
35 P15/TOUT
36 P16/SCK0
37 P17/READY
17 P20/DMARQ0
21 P21/DMAAK0
23 P22/TC0
25 P23/DMARQ1
26 P24/DMAAK1
27 P25/TC1
28 P26/HLDAK
29 P27/HLDRQ
58 REFRQ
63 EA
53 X1
54 X2
D0 74
D1 75
D2 76
D3 77
D4 78
D5 79
D6 80
D7 81
A0 82
A1 83
A2 84
A3 85
A4 86
A5 87
A6 88
A7 89
A8 90
A9 91
A10 92
A11 94
A12 1
A13 3
A14 4
A15 5
A16 6
A17 7
A18 8
A19 9
TXD0 13
TXD1 16
RXD0 10
RXD1 14
CTS0 12
CTS1 15
MREQ 62
MSTB 60
IOSTB 61
R/W 59
RESET
57

INPUT

DMARQ0, DMARQ1	; DMA REQUEST CH0, CH1
$\overline{\text{EA}}$	; ROM-LESS MORE SET
HLDRQ	; HOLD
IC	; INTERNALLY CONNECTED (FIXED HIGH LEVEL CONNECTION)
INT, $\overline{\text{INTP0}}$, $\overline{\text{INTP1}}$, $\overline{\text{INTP2}}$	; INTERRUPT REQUESTS
NMI	; NON – MASKABLE INTERRUPT
$\overline{\text{POLL}}$	; POLL
PT0 – PT7	; PORT T
READY	; READY
$\overline{\text{RESET}}$	; RESET
RXD0, RXD1	; SERIAL DATA 0, 1
$\overline{\text{TC0}}$, $\overline{\text{TC1}}$	; DMA ENDING CH0, CH1
VTH	; REFERENCE VOLTAGE FOR COMPARATOR
X1, X2	; CRYSTAL 1, 2

OUTPUT

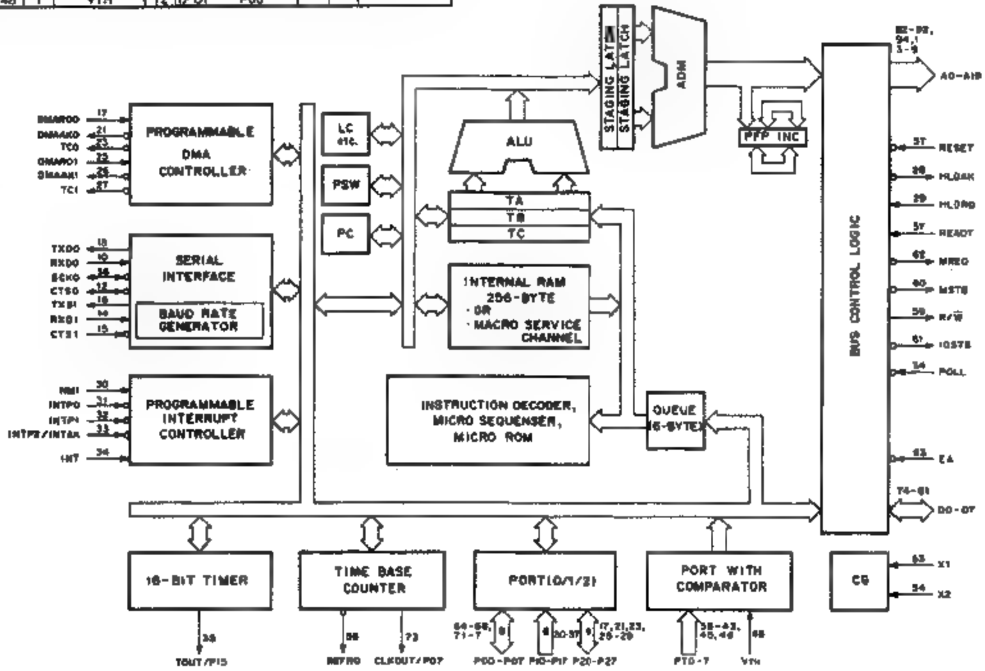
A0 – A19	; ADDRESS BUS
CLKOUT	; SYSTEM CLOCK
$\overline{\text{DMAAK0}}$, $\overline{\text{DMAAK1}}$	; DMA ACKNOWLEDGE CH0, CH1
HLDAK	; HOLD ACKNOWLEDGE
$\overline{\text{INTAK}}$	; INTERRUPT ACKNOWLEDGE
$\overline{\text{IOSTB}}$	; I/O READ/WRITE STROBE
$\overline{\text{MREQ}}$	; MEMORY BUS CYCLE
$\overline{\text{MSTB}}$	; MEMORY READ/WRITE STROBE
R/W	; READ AND WRITE CYCLE
$\overline{\text{REFRQ}}$	; REFRESH REQUEST
$\overline{\text{SCK0}}$	; SERIAL CLOCK
TOUT	; TIMER
TXD0, TXD1	; SERIAL DATA 0, 1

INPUT/OUTPUT

$\overline{\text{CTS0}}$, $\overline{\text{CTS1}}$	; CLEAR TO SEND 0, 1
D0 – D7	; DATA BUS
P00 – P07	; PORT 0
P10 – P17	; PORT 1
P20 – P27	; PORT 2

(V_{DD} = +5 V)

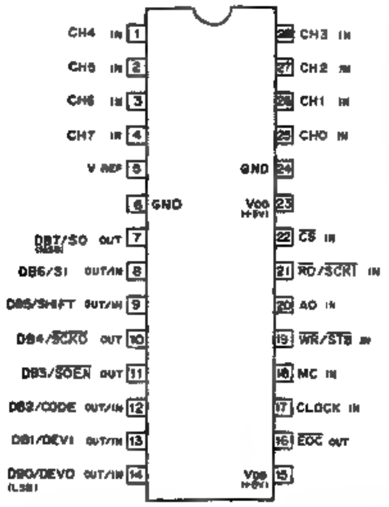
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	O	A12	25	I/O	P23/DMARQ1	49	–	NC	73	I/O	P07/CLKOUT
2	–	NC	26	I/O	P24/$\overline{\text{DMAAK1}}$	50	–	NC	74	I/O	D0
3	O	A13	27	I/O	P25/$\overline{\text{TC1}}$	51	–	GND	75	I/O	D1
4	O	A14	28	I/O	P26/HLDAK	52	–	GND	76	I/O	D2
5	O	A15	29	I/O	P27/HLDRQ	53	I	X1	77	I/O	D3
6	O	A16	30	I	P10/NMI	54	I	X2	78	I/O	D4
7	O	A17	31	I	P11/$\overline{\text{INTP0}}$	55	–	V_{DD}	79	I/O	D5
8	■	A18	32	I	P12/$\overline{\text{INTP1}}$	56	–	V_{DD}	80	I/O	D6
9	O	A19	33	I/O	P13/$\overline{\text{INTP2}}$/$\overline{\text{INTAK}}$	57	I	$\overline{\text{RESET}}$	81	I/O	D7
10	I	RXD0	34	I/O	P14/INT/$\overline{\text{POLL}}$	58	O	$\overline{\text{REFRQ}}$	82	O	A0
11	–	GND	35	I/O	P15/TOUT	59	O	R/$\overline{\text{W}}$	83	O	A1
12	I/O	$\overline{\text{CTS0}}$	36	I/O	P16/$\overline{\text{SCK0}}$	60	O	$\overline{\text{MSTB}}$	84	■	A2
13	O	TXD0	37	I/O	P17/READY	61	O	$\overline{\text{IOSTB}}$	85	O	A3
14	I	RXD1	38	I	PT0	62	O	$\overline{\text{MREQ}}$	86	O	A4
15	I	$\overline{\text{CTS1}}$	39	I	PT1	63	I	$\overline{\text{EA}}$	87	O	A5
16	O	TXD1	40	I	PT2	64	I/O	P00	88	O	A6
17	I/O	P20/DMARQ0	41	I	PT3	65	I/O	P01	89	O	A7
18	–	IC	42	I	PT4	66	I/O	P02	90	O	A8
19	–	V_{DD}	43	I	PT5	67	I/O	P03	91	O	A9
20	–	V_{DD}	44	–	NC	68	I/O	P04	92	O	A10
21	I/O	P21/$\overline{\text{DMAAK0}}$	45	I	PT6	69	–	IC	93	–	NC
22	–	NC	46	I	PT7	70	–	NC	94	O	A11
23	I/O	P22/$\overline{\text{TC0}}$	47	–	IC	71	I/O	P05			
24	–	IC	48	I	VTH	72	I/O	P06			

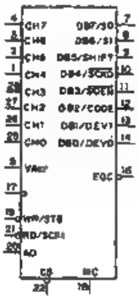


DMARQ0 17
DMAAK0 21
TC0 23
DMARQ1 25
DMAAK1 26
TC1 27
PROGRAMMABLE DMA CONTROLLER
TXD0 13
RXD0 10
SCK0 36
CTS0 12
TXD1 16
RXD1 14
CTS1 15
SERIAL INTERFACE
BAUD RATE GENERATOR
NMI 30
INTP0 31
INTP1 32
INTP2/INTAK 33
INT 34
PROGRAMMABLE INTERRUPT CONTROLLER
LC etc.
PSW
PC
ALU
TA
TB
TC
INTERNAL RAM 256-BYTE
· OR
· MACRO SERVICE CHANNEL
INSTRUCTION DECODER, MICRO SEQUENSER, MICRO ROM
STAGING LATCH
STAGING LATCH
ADM
PFP INC
QUEUE (6-BYTE)
BUS CONTROL LOGIC
82-92, 94, 1, 3-9
A0-A19
57 RESET
28 HLDAK
29 HLDRQ
37 READY
62 MREQ
60 MSTB
59 R/W
61 IOSTB
34 POLL
63 EA
74-81
D0-D7
16-BIT TIMER
35
TOUT/P15
TIME BASE COUNTER
58
REFRQ
73
CLKOUT/P07
PORT(0/1/2)
64-68, 71-7
8
P00-P07
8
30-37
P10-P17
8
17, 21, 23, 25-29
P20-P27
PORT WITH COMPARATOR
38-43, 45, 46
PT0-7
48
VTH
CG
53 X1
54 X2

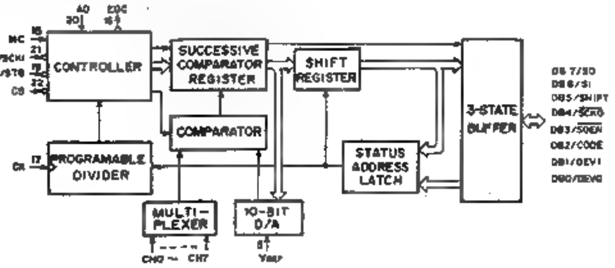
UPD7004C (NEC)

C-MOS 10-BIT SUCCESSIVE COMPARATOR TYPE A/D CONVERTER
—TOP VIEW—


CH4 IN 1
CH5 IN 2
CH6 IN 3
CH7 IN 4
V REF 5
6 GND
DB7/SO OUT 7
DB6/SI OUT/IN 8
DB5/SHIFT OUT/IN 9
DB4/SCKO OUT 10
DB3/SOEN OUT 11
DB2/CODE OUT/IN 12
DB1/DEV1 OUT/IN 13
DB0/DEV0 OUT/IN 14
(LSB)
28 CH3 IN
27 CH2 IN
26 CH1 IN
25 CH0 IN
GND 24
Vcc 23
22 CS IN
21 RD/SCKI IN
20 A0 IN
19 WR/STB IN
18 MC IN
17 CLOCK IN
16 EOC OUT
Vpp 15


CH7
CH6
CH5
CH4
CH3
CH2
CH1
CH0
VREF
DB7/SO
DB6/SI
DB5/SHIFT
DB4/SCKO
DB3/SOEN
DB2/CODE
DB1/DEV1
DB0/DEV0
EOC
WR/STB
RD/SCKI
A0
CS
MC

A0	; CONTROL ADDRESS INPUT	SCKI	; SERIAL CLOCK INPUT
CH0~7	; ANALOG INPUT	SCKO	; SERIAL CLOCK OUTPUT
CODE	; CODE SELECT (2'S COMPLEMENT/ BINARY) INPUT	SHIFT	; SHIFT SELECT (LSB FIRST/ MSB FIRST)
CS	; CHIP SELECT INPUT	SI	; SERIAL INPUT
DB0~7	; DATA BUS INPUT/OUTPUT	SO	; SERIAL OUTPUT
DEV0, DEV1	; CLOCK RATE SELECT INPUT	SOEN	; SERIAL OUTPUT ENABLE OUTPUT
EOC	; CONVERSION ENDING SIGNAL OUTPUT	STB	; ADDRESS WRITE STROBE SIGNAL INPUT
MC	; MODE SELECT INPUT	WR	; WRITE SIGNAL INPUT
RD	; READ SIGNAL INPUT		


A0
EOC
MC
RD/SCKI
WR/STB
CS
CONTROLLER
SUCCESSIVE COMPARATOR REGISTER
SHIFT REGISTER
COMPARATOR
3-STATE BUFFER
STATUS ADDRESS LATCH
CK
PROGRAMABLE DIVIDER
MULTI-PLEXER
10-BIT D/A
CH0 ~ CH7
VREF
DB7/SO
DB6/SI
DB5/SHIFT
DB4/SCKO
DB3/SOEN
DB2/CODE
DB1/DEV1
DB0/DEV0

MC	MODE
0	SERIAL
1	PARALLEL

PARALLEL MODE

CS	WR	RD	A0	MODE
1	X	X	X	HIGH IMPEDANCE
0	1	1	X	HIGH IMPEDANCE
0	0	1	0	#1 ANALOG CHANNEL SELECT
0	0	1	1	#2 CODE SELECT/ #3 CLOCK RATE SELECT
0	1	0	0	#4 LOW-BYTE DATA OUTPUT
0	1	0	1	#4 HIGH-BYTE DATA OUTPUT
0	0	0	X	INHIBIT

0 ; LOW LEVEL X : DON'T CARE
1 ; HIGH LEVEL

#1 ANALOG CHANNEL

SEL2	SEL1	SEL0	MPX CHAN.
0	0	0	CH0
0	0	1	CH1
0	1	0	CH2
0	1	1	CH3
1	0	0	CH4
1	0	1	CH5
1	1	0	CH6
1	1	1	CH7

#2 CODE SELECT

CODE	CODE SELECT
0	BINARY DATA
1	2'S COMPLEMENT DATA

#3 CLOCK RATE SELECT

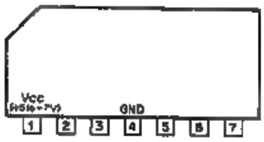
DEV1	DEV 0	CLOCK RATE
0	0	1
0	1	1/2
1	0	1/4
1	1	1/8

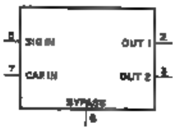
#4 LOW/HIGH-BYTE DATA

	[illegible]	DB 6	DB5	DB4	DB3	DB2	DB1	DB 0
HIGH-BYTE	[illegible]	2ND	3RD	4TH	5TH	6TH	7TH	8TH
LOW-BYTE	9TH	0	0	0	0	0	0	0

UPC1037HA (NEC)

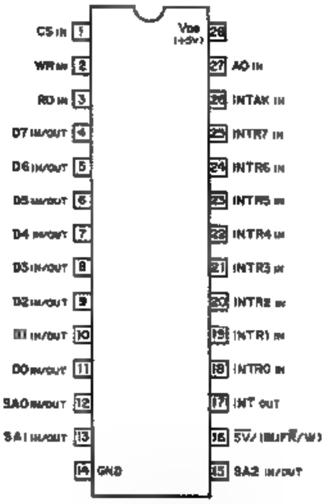
DOUBLE-BALANCED MODULATOR
—SIDE VIEW—

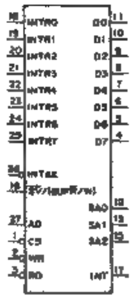

Vcc
GND
1
2
3
4
5
6
7


5 SIG IN
7 CAR IN
OUT 1 2
OUT 2 3
BYPASS
6

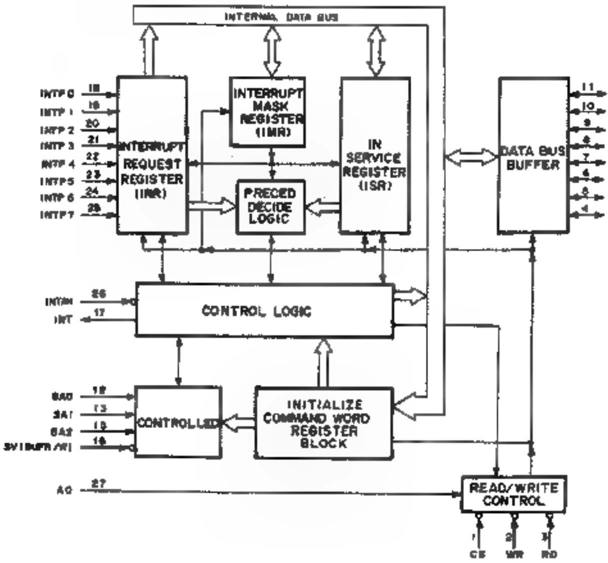
UPD71059C (NEC)

C-MOS INTERRUPT CONTROL UNIT
—TOP VIEW—


CS IN 1
WR IN 2
RD IN 3
D7 IN/OUT 4
D6 IN/OUT 5
D5 IN/OUT 6
D4 IN/OUT 7
D3 IN/OUT 8
D2 IN/OUT 9
D1 IN/OUT 10
D0 IN/OUT 11
SA0 IN/OUT 12
SA1 IN/OUT 13
14 GND
VDD (+5V) 28
27 A0 IN
26 INTAK IN
25 INTR7 IN
24 INTR6 IN
23 INTR5 IN
22 INTR4 IN
21 INTR3 IN
20 INTR2 IN
19 INTR1 IN
18 INTR0 IN
17 INT OUT
16 SV/(BUFR/W) IN/OUT
15 SA2 IN/OUT

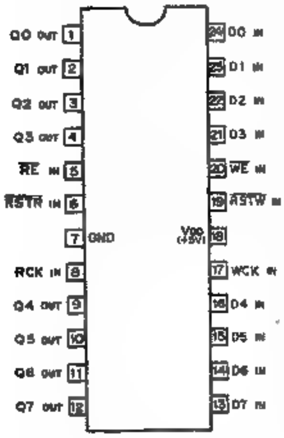

INTR0
INTR1
INTR2
INTR3
INTR4
INTR5
INTR6
INTR7
INTAK
SV/(BUFR/W)
A0
CS
WR
RD
D0
D1
D2
D3
D4
D5
D6
D7
SA0
SA1
SA2
INT

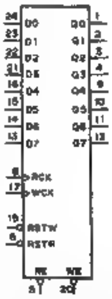
INTR0—INTR7 ; INTERRUPT REQUEST INPUTS
D0-D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0 ; ADDRESS INPUT
INT ; INTERRUPT OUTPUT
INTAK ; INTERRUPT ACKNOWLEDGE INPUT
SV/(BUFR/W) ; CONTROLLED/BUFFER READ/WRITE INPUT/OUTPUT
SA0-SA2 ; CONTROLLED ADDRESS INPUTS/OUTPUTS


INTERNAL DATA BUS
INTP 0
INTP 1
INTP 2
INTP 3
INTP 4
INTP 5
INTP 6
INTP 7
INTERRUPT REQUEST REGISTER (IRR)
INTERRUPT MASK REGISTER (IMR)
PRECED DECIDE LOGIC
IN SERVICE REGISTER (ISR)
DATA BUS BUFFER
D0
D1
D2
D3
D4
D5
D6
D7
INTAK
INT
CONTROL LOGIC
SA0
SA1
SA2
SV(BUFR/W)
CONTROLLED
INITIALIZE COMMAND WORD REGISTER BLOCK
A0
READ/WRITE CONTROL
CS
WR
RD

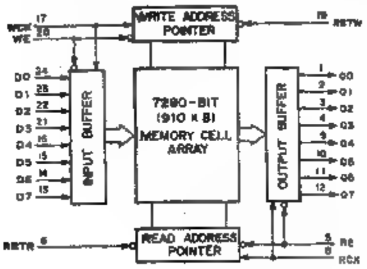
UPD42101G-3 (NEC) FLAT PACKAGE

C-MOS 7K (910×8)-BIT FIFO MEMORY
—TOP VIEW—


Q0 OUT 1
Q1 OUT 2
Q2 OUT 3
Q3 OUT 4
$\overline{RE}$ IN 5
$\overline{RSTR}$ IN 6
7 GND
RCK IN 8
Q4 OUT 9
Q5 OUT 10
Q6 OUT 11
Q7 OUT 12
24 D0 IN
23 D1 IN
22 D2 IN
21 D3 IN
20 $\overline{WE}$ IN
19 $\overline{RSTW}$ IN
VDD (+5V) 18
17 WCK IN
16 D4 IN
15 D5 IN
14 D6 IN
13 D7 IN


24 D0
23 D1
22 D2
21 D3
16 D4
15 D5
14 D6
13 D7
8 RCK
17 WCK
19 RSTW
6 RSTR
Q0 1
Q1 2
Q2 3
Q3 4
Q4 9
Q5 10
Q6 11
Q7 12
RE 5
WE 20

D0~D7 ; DATA INPUTS
Q0~Q7 ; DATA OUTPUTS
WCK ; WRITE CLOCK INPUT
RCK ; READ CLOCK INPUT
$\overline{WE}$; WRITE ENABLE INPUT
$\overline{RE}$; READ ENABLE INPUT
$\overline{RSTW}$; RESET WRITE INPUT
$\overline{RSTR}$; RESET READ INPUT


WCK 17
WE 20
WRITE ADDRESS POINTER
19 RSTW
D0 24
D1 23
D2 22
D3 21
D4 16
D5 15
D6 14
D7 13
INPUT BUFFER
7280-BIT (910 x 8) MEMORY CELL ARRAY
OUTPUT BUFFER
1 Q0
2 Q1
3 Q2
4 Q3
9 Q4
10 Q5
11 Q6
12 Q7
RSTR 6
READ ADDRESS POINTER
5 RE
8 RCK

SECTION 8
SPARE PARTS

8-1. NOTES ON SPARE PARTS

(1) Safety Related Components Warning

Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation.
Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts

Spare parts supplied from Sony Parts Center may not always be identical with the parts actually in use due to accommodating the improved parts and/or engineering changes or standardization of genuine parts.
This manual's exploded views and electrical spare parts list indicate the part numbers of the standardized genuine parts at present.

(3) Stock of Part

Parts marked with "o" in the SP (Supply code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional time for delivery.

(4) Units for Capacitors, Inductors and resistors

The following units may be assumed in schmatic diagrams, electrical parts list and exploded views unless otherwise specified.

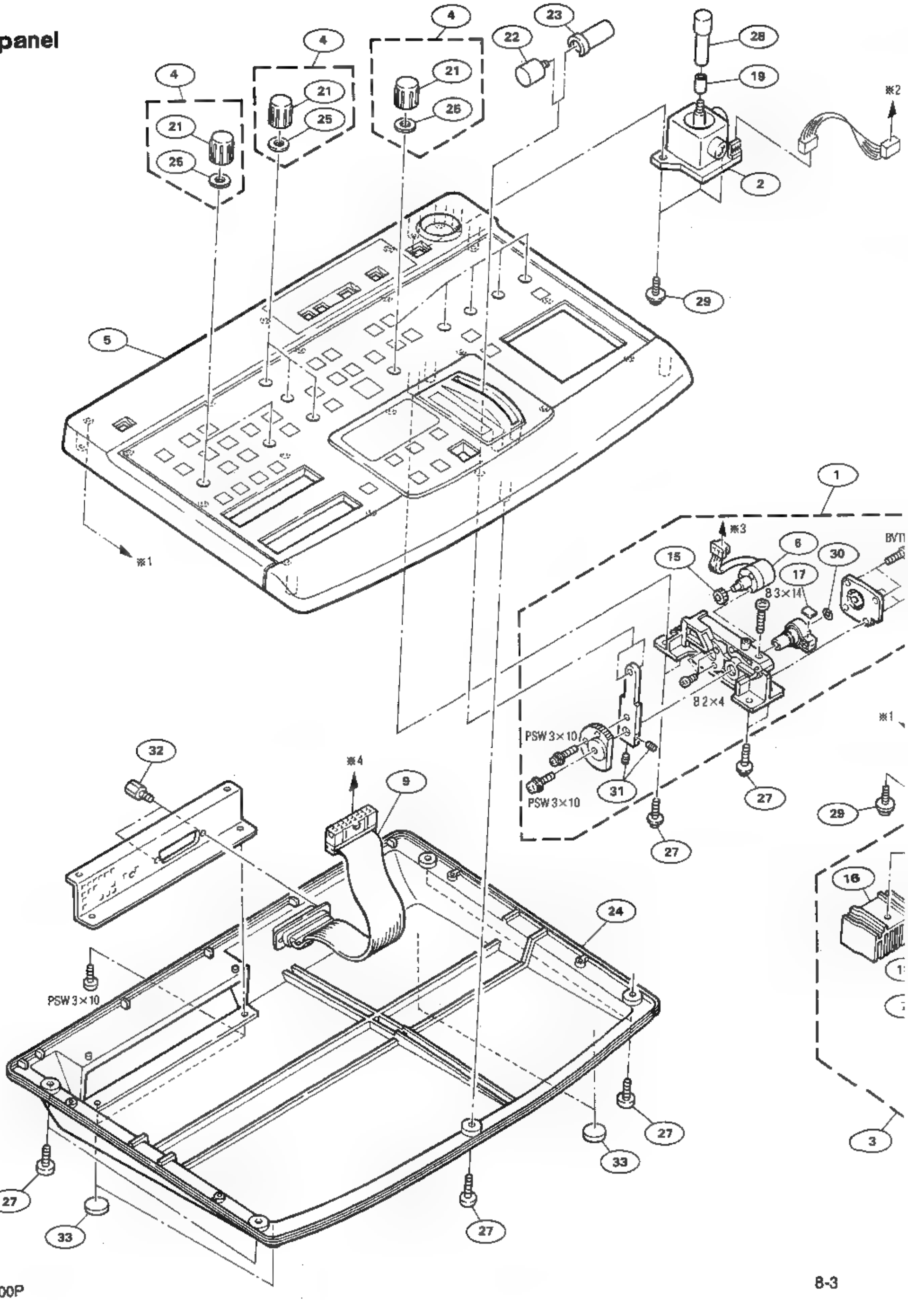
Capacitor: µF
Inductor : µH
Resistor : Ω

8-2. EXPLODED VIEW AND LIST

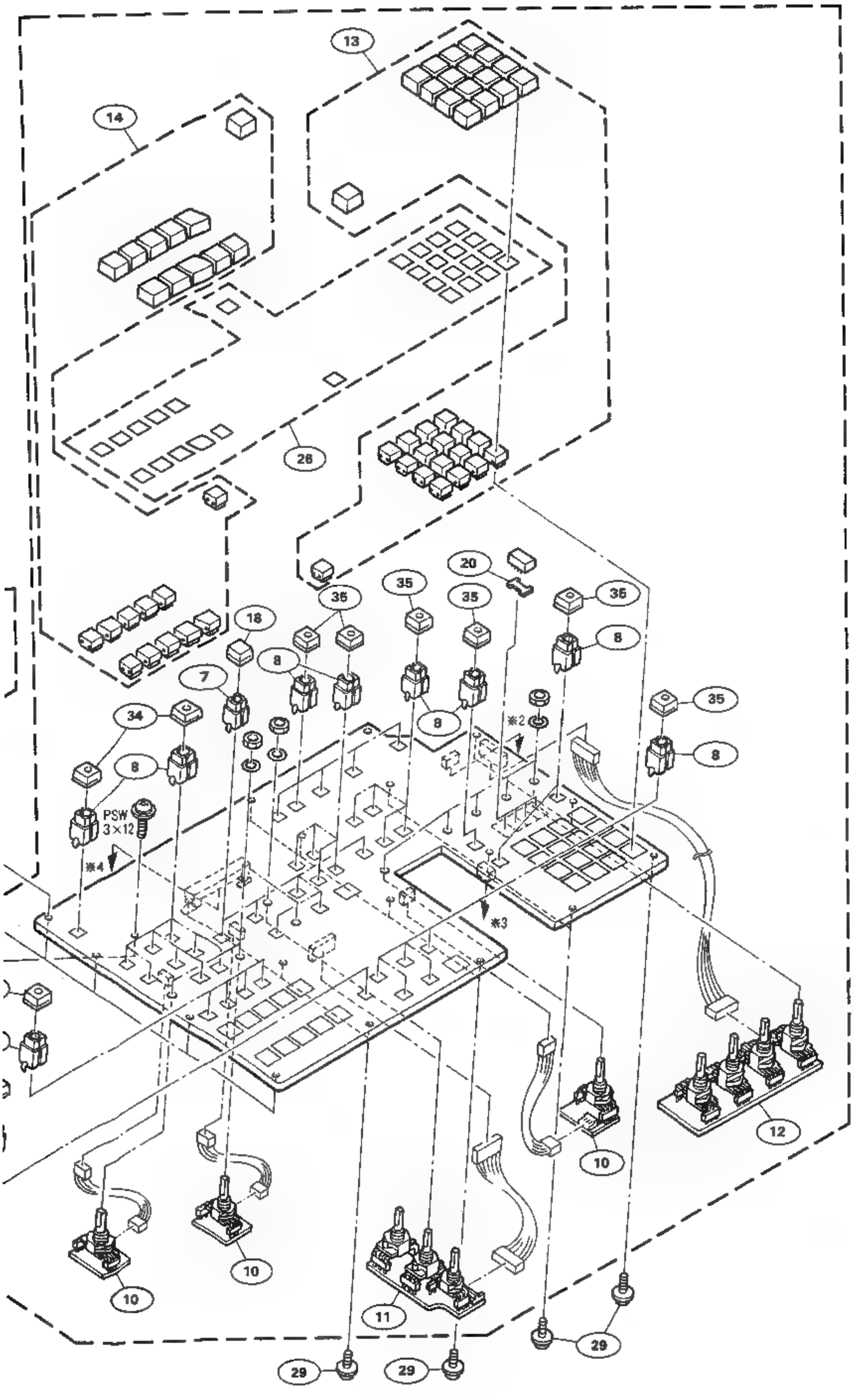
CONTROL PANEL, DFS-300/300P

No.	Part No.	SP	Description
1	A-8262-836-A	o	FADER ASSY
2	A-8310-392-A	■	MOUNTED CIRCUIT BOARD, KY-311
3	A-8310-394-A	o	MOUNTED CIRCUIT BOARD, KY-309
4	X-3167-051-1	s	KNOB ASSY, BOLUME
5	X-3167-692-1	o	PANEL ASSY, UPPER
6	1-467-705-11	s	ENCODER, ROTARY
7	1-571-653-21	s	SWITCH, PUSH
8	1-571-654-21	s	SWITCH, PUSH
9	1-574-992-11	s	WIRE ASSY, FLAT TYPE(25 CORE)
10	1-644-610-11	o	PRINTED CIRCUIT BOARD, VR-135
11	1-644-612-11	o	PRINTED CIRCUIT BOARD, VR-137
12	1-644-613-11	o	PRINTED CIRCUIT BOARD, VR-138
13	1-762-281-11	s	SWITCH, PUSH (WITH LED)
14	1-762-282-11	s	SWITCH, PUSH (WITH LED)
15	2-139-100-01	s	GEAR (C)
16	2-139-131-11	o	HEAT SINK, CON.
17	2-139-171-01	s	SPACER (F)
18	2-140-311-04	s	KEY TOP
19	3-166-428-01	s	COVER, JOG
20	3-178-140-01	o	SPACER
21	3-178-147-02	s	KNOB, VOLUME
22	3-178-149-01	o	GRIP (A)
23	3-178-150-01	o	GRIP (B)
24	3-178-178-01	o	PANEL, LOWER
25	3-179-662-01	s	WASHER
26	3-186-503-01	o	SW CHIP (A)
27	3-187-548-02	s	GIZA TITE, +BV 3X10
28	3-187-549-01	s	LEVER, JOG
29	3-678-079-01	s	+BVWH 3X8 GIZA TITE
30	3-701-443-11	s	WASHER
31	3-701-508-00	s	SET SCREW, DOUBLE POINT 3X6
32	3-711-228-21	o	STANDOFF, D SUB CONN.
33	3-714-101-01	s	LEG (FRONT)
34	4-928-315-01	s	KEY TOP
35	4-928-315-11	s	KEY TOP

Control panel


4
4
4
21
25
21
25
21
25
22
23
28
19
※2
2
29
5
※1
1
※3
6
30
15
17
B 3×14
B 2×4
PSW 3×10
PSW 3×10
31
27
27
※1
29
16
3
32
※4
9
24
PSW 3×10
27
33
27
33
27
27

NTROL PANEL


※2
PSW
3×12
※4
※3

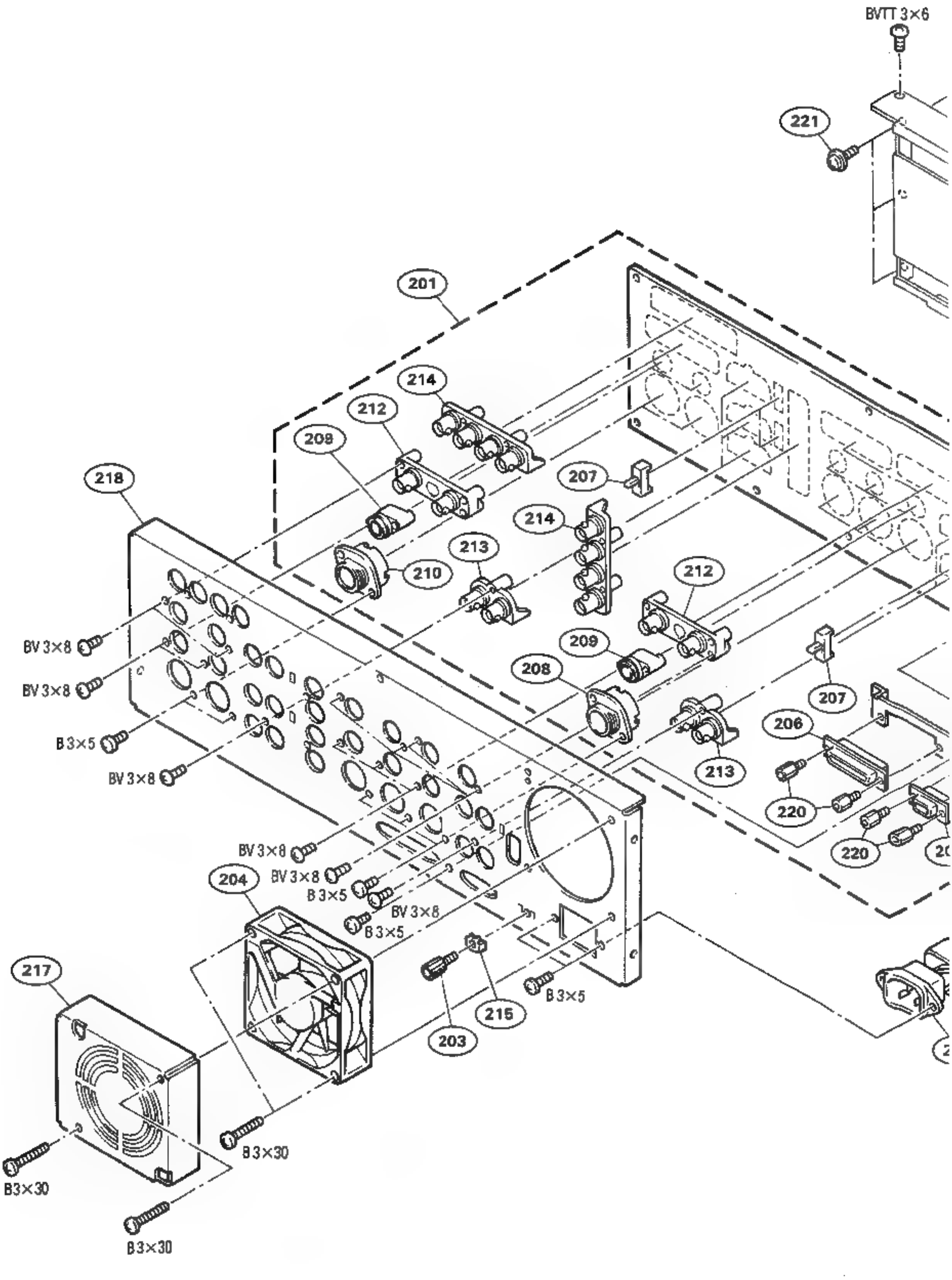
FRONT PANEL, DFS-300/300P

No.	Part No.	SP	Description
101	A-8310-401-A	■	MOUNTED CIRCUIT BOARD, SY-199 (For J,UC)
	A-8310-712-A	o	MOUNTED CIRCUIT BOARD, SY-199P (For EK)
102	A-8310-403-A	o	MOUNTED CIRCUIT BOARD, MY-62
103	A-8310-405-A	■	MOUNTED CIRCUIT BOARD, AD-104 (For UC)
	A-8310-407-A	o	MOUNTED CIRCUIT BOARD, AD-104 (For J)
	A-8310-714-A	o	MOUNTED CIRCUIT BOARD, AD-104P (For EK)
104	A-8310-408-A	o	MOUNTED CIRCUIT BOARD, DA-79 (For J,UC)
	A-8310-716-A	o	MOUNTED CIRCUIT BOARD, DA-79P (For EK)
105	X-3167-287-2	o	PLATE, SHIELD ASSY
106	X-3167-344-1	■	BRACKET ASSY, SW
107	X-3167-690-1	o	ANGLE ASSY (3U), RACK
108	X-3167-691-1	o	PANEL ASSY, FRONT
109	⚠1-468-016-11	s	REGULATOR, SWITCHING (SS0G1011) (For J,UC)
	⚠1-468-016-21	s	REGULATOR, SWITCHING (SS0G1011KA) (For EK)
110	⚠1-570-117-41	s	SWITCH, ROCKER (AC POWER)
111	⚠1-576-233-41	s	FUSE (H.B.C.) 6.3A 250V
112	1-620-338-11	o	PRINTED CIRCUIT BOARD, LE-55
113	2-139-020-01	o	SHAFT (3U), HINGE
114	2-139-072-03	o	FILTER (3U)
115	2-139-108-01	o	BRACKET, LED
116	2-139-192-01	s	FRAME, INDICATOR WINDOW
117	2-139-193-02	s	WINDOW, INDICATOR
118	2-249-353-00	s	COVER, LAMP
119	2-280-622-01	o	SUPPORT (M3), HEXAGON
120	2-280-622-21	o	SUPPORT (M3X10), HEXAGON
121	3-166-184-01	o	LEVER, PC BOARD
122	3-166-185-01	s	NUT, PLATE
123	3-166-743-01	o	TAPE, ADHESIVE
124	3-178-164-01	o	RAIL (290), PC BOARD GUIDE
125	3-182-198-61	o	LABEL, MODEL NAME (For J,UC)
	3-182-198-71	o	LABEL, MODEL NAME (For EK)
126	3-182-904-01	o	WASHER, RUBBER
127	3-182-923-01	o	STAY (F)
128	3-182-924-01	o	CHASSIS (LOWER)
129	3-183-548-02	s	SCREW, PANEL SWITCHING
130	3-185-024-02	o	HINGE (3U)
131	3-185-851-01	o	BRACKET, LOCK
132	3-187-547-01	o	NUT, TERMINAL
133	3-642-656-01	s	FOOT
134	3-688-814-01	s	CAP, SWITCH
135	3-703-249-21	s	SCREW, S TIGHT, +PTTWH (M3X8)
136	4-378-341-01	o	COVER, SWITCH
137	4-604-107-11	o	GUARD, POWER SW
138	4-886-821-11	s	SCREW, [illegible] CASE

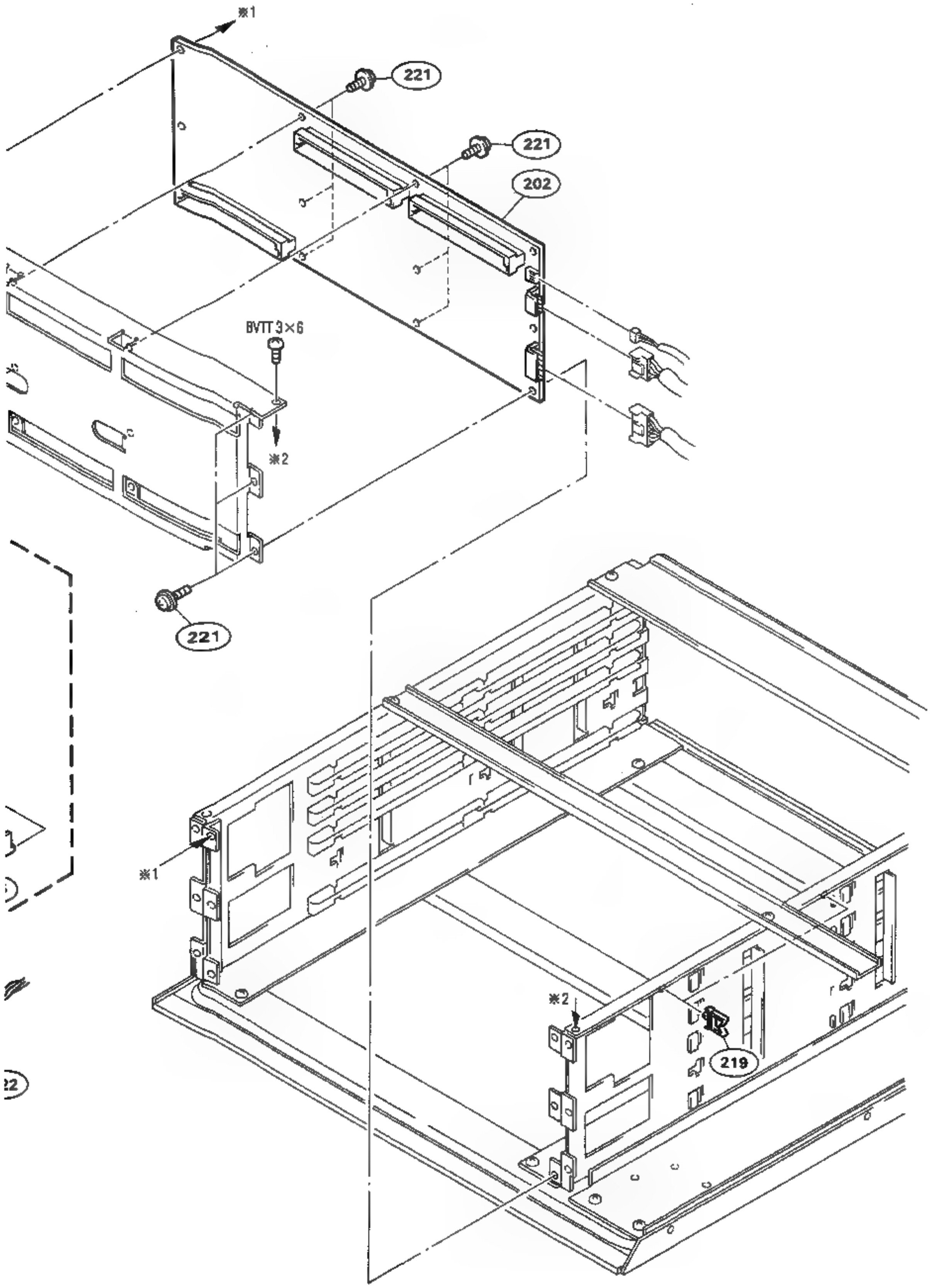
REAR PANEL, DFS-300/300P

No.	Part No.	SP	Description
201	A-8310-412-A	o	MOUNTED CIRCUIT BOARD, CN-981
202	A-8310-414-A	o	MOUNTED CIRCUIT BOARD, MB-548
203	X-2068-004-0	s	TERMINAL ASSY
204	1-541-329-41	s	FAN, DC
205	1-568-676-11	o	CONNECTOR, D-SUB 9P
206	1-568-677-11	■	CONNECTOR, D-SUB 25P
207	1-570-157-51	s	SWITCH, SLIDE
208	1-573-589-11	s	CONNECTOR, (R-M) 12P
209	1-573-590-12	s	CONNECTOR, (S) TERMINAL 4P
210	1-573-592-11	s	CONNECTOR, (R-F) 12P
211	⚠1-580-375-11	s	INLET 3P
212	1-695-807-11	s	CONNECTOR, BNC, FEMALE
213	1-766-788-11	s	CONNECTOR, BNC TYPE, FEMALE
214	1-770-356-11	■	CONNECTOR, BNC, FEMALE
215	2-068-008-00	s	WASHER
216	3-178-137-01	o	BRACKET, D-SUB
217	3-185-025-02	o	COVER, FAN
218	3-187-559-02	o	PANEL, REAR
219	3-655-214-00	■	CLIP, CABLE
220	3-673-910-21	o	SCREW, CONNECTOR
221	3-703-249-21	s	SCREW, S TIGHT, +PTTWH (M3X8)
222	4-601-466-11	s	COVER, 3P INLET

Rear panel


BVTT 3×6
BV 3×8
BV 3×8
B3×5
BV 3×8
BV 3×8
BV 3×8
B3×5
BV 3×8
B3×5
B3×5
B3×30
B3×30
B3×30

AR PANEL


※1
221
221
202
BVTT 3×6
※2
221
※1
※2
219
22

8-3. ELECTRICAL PARTS LIST

AD-104 BOARD FOR UC

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-405-A	o	MOUNTED CIRCUIT BOARD, AD-104
2pcs	3-166-184-01	o	LEVER, PC BOARD
2pcs	3-166-185-01	s	NUT, PLATE
1pc	4-886-821-11	s	SCREW, S TIGHT, +PTTWH 3X6
4pcs	7-621-773-87	s	SCREW +B 2.6X10
2pcs	7-626-320-11	s	PIN, SPRING 3X8
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
C1	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C2	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C3	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C4	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C5	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C6	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C7	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C8	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C9-21	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C22	1-126-934-11	■	ELECT 220uF 20% 16V
C23	1-164-346-11	s	CERAMIC 1uF 16V
C24	1-126-934-11	s	ELECT 220uF 20% 16V
C25	1-164-346-11	s	CERAMIC 1uF 16V
C26	1-126-934-11	s	ELECT 220uF 20% 16V
C27	1-164-346-11	s	CERAMIC 1uF 16V
C28	1-164-346-11	s	CERAMIC 1uF 16V
C29	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C30	1-126-934-11	s	ELECT 220uF 20% 16V
C31	1-164-346-11	s	CERAMIC 1uF 16V
C32	1-164-346-11	s	CERAMIC 1uF 16V
C33	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C34	1-126-934-11	■	ELECT 220uF 20% 16V
C35	1-164-346-11	s	CERAMIC 1uF 16V
C36	1-164-346-11	s	CERAMIC 1uF 16V
C37	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C38	1-126-934-11	s	ELECT 220uF 20% 16V
C39	1-164-346-11	s	CERAMIC 1uF 16V
C40	1-126-934-11	■	ELECT 220uF 20% 16V
C41	1-164-346-11	s	CERAMIC 1uF 16V
C42	1-126-934-11	s	ELECT 220uF 20% 16V
C43	1-164-346-11	s	CERAMIC 1uF 16V
C44	1-164-346-11	s	CERAMIC 1uF 16V
C45	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C46	1-126-925-11	s	ELECT 470uF 20% 10V
C47	1-164-346-11	s	CERAMIC 1uF 16V
C48	1-126-925-11	s	ELECT 470uF 20% 10V
C49	1-164-346-11	s	CERAMIC 1uF 16V
C50	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C51	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C52	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C53	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C54	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C55	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C56	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C57	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C58	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C59	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C60	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C61	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C62	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C63	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

(AD-104 BOARD FOR UC)

Ref. No. or Q'ty	Part No.	SP	Description
C64	1-104-601-11	■	ELECT 10uF 20% 10V
C65-70	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C71	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C72	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C73-76	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C77	1-163-227-11	■	CERAMIC, CHIP 10PF 5% 50V
C101	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C102	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C103	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C104	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C105	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C106	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C107	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C108	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C109	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C110	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C111	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C112	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C113	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C114	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C115	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C116	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C117	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C118	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C119	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C120	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C121	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C122	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C123	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C124	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C125	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C126	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C127	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C128	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C129	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C130	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C131	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C132	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C133	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C134	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C135	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C136	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C137	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C138	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C139	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C140	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C141	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C142	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C143	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C144	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C145	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C201	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C202	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C203	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C204	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C207	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C208	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C209	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C211	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C212	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C213	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C214	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C215	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C216	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C217	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C218	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C219	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C220	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C221	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C222	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C223	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C224	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C225	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C226	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C227	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C228	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C229	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C230	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C231	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C232	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C233	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C234	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C235	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C236	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C237	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C238	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C239	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C240	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C241	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C242	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C243	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C244	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C245	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C301	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C302	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C303	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C304	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C305	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C306	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C307	1-164-346-11	s	CERAMIC 1uF 16V
C308	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C309	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C310	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C311	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C312	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C313	1-164-346-11	s	CERAMIC 1uF 16V
C314	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C316	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C317	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C318	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C319	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C320	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C321	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C322	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C323	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C324	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C325	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C326	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C327	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C328	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C329	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C330	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C331	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C332	1-163-224-11	■	CERAMIC, CHIP 7PF 50V
C341	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C342	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C343	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C344	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C345	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C346	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C347	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C351	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C352	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C353	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C354	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C355	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C356	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C357	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C358	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C359	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C360	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C361	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C362	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C363	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C364	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C365	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C366	1-164-346-11	s	CERAMIC 1uF 16V
C367	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C368	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C369	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C370	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C371	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C381	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C382	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C383	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C384	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C385	1-163-239-11	■	CERAMIC, CHIP 33PF 5% 50V
C386	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C387	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C388	1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V
C389	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C390	1-163-243-11	■	CERAMIC, CHIP 47PF 5% 50V
C391	1-163-235-11	■	CERAMIC, CHIP 22PF 5% 50V
C392	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C401	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C402	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C403	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C404	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C405	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C406	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C407	1-164-346-11	■	CERAMIC 1uF 16V
C408	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C409	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C410	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C411	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C412	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C413	1-164-346-11	s	CERAMIC 1uF 16V
C414	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C415	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C416	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C417	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C418	1-163-133-00	■	CERAMIC, CHIP 470PF 5% 50V
C419	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C420	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C421	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C422	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C423	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C424	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C425	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C426	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C427	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C428	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C429	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C430	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C431	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C432	1-163-224-11	s	CERAMIC, CHIP 7PF 50V
C441	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C442	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C443	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C444	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C445	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C446	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C447	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C451	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C452	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C453	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C454	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C455	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C456	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C457	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C458	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C459	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C460	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C461	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C462	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C463	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C464	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C465	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C466	1-164-346-11	s	CERAMIC 1uF 16V
C467	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C468	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C469	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C470	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C471	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C481	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C482	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C483	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C484	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C485	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C486	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C487	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C488	1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C489	1-163-235-11	■	CERAMIC, CHIP 22PF 5% 50V
C490	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C491	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C492	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C501	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C502	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C503	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C504	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C505	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C506	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C507	1-164-346-11	■	CERAMIC 1uF 16V
C508	1-164-346-11	s	CERAMIC 1uF 16V
C509	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C510	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C512	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C521	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C522	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C525	1-164-346-11	■	CERAMIC 1uF 16V
C526	1-164-005-11	■	CERAMIC, CHIP 0.47uF 25V
C527	1-164-346-11	■	CERAMIC 1uF 16V
C528	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C529	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C530	1-164-346-11	■	CERAMIC 1uF 16V
C531	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C532	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C533	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C534	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C535	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C536	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C537	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C538	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C539	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C540	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C541	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C542	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C543	1-163-229-11	s	CERAMIC, CHIP 12PF 5% 50V
C544	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C545	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C546	1-163-275-11	■	CERAMIC, CHIP 0.001uF 5% 50V
C547	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C548	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C549	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C560	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C561	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C562	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C563	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C564	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C565	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C566	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C571	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C572	1-163-241-11	s	CERAMIC, CHIP 39PF 5% 50V
C573	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C574	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C575	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C576	1-163-241-11	s	CERAMIC, CHIP 39PF 5% 50V
C577	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C578	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C581	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C582	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C583	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C584	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C585	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C586	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C587	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C588	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C589	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C590	1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V
C591	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C592	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C593	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C594	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C595	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C596	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C601	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C602	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C603	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C604	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C605	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C606	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C607	1-164-346-11	s	CERAMIC 1uF 16V
C608	1-164-346-11	s	CERAMIC 1uF 16V
C609	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C610	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C612	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C621	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C622	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C625	1-164-346-11	s	CERAMIC 1uF 16V
C626	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C627	1-164-346-11	s	CERAMIC 1uF 16V
C628	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C629	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C630	1-164-346-11	s	CERAMIC 1uF 16V
C631	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C632	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C633	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C634	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C635	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C636	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C637	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C638	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C639	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C640	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C641	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C642	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C643	1-163-229-11	s	CERAMIC, CHIP 12PF 5% 50V
C644	1-163-275-11	s	CERAMIC, CHIP 0.001uF [illegible] 50V
C645	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C646	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C647	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C648	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C649	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C660	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C661	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C662	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C663	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C664	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C665	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C666	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V

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Ref. No. or Q'ty	Part No.	SP	Description
C671	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C672	1-163-241-11	s	CERAMIC, CHIP 39PF 5% 50V
C673	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C674	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C675	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C676	1-163-241-11	s	CERAMIC, CHIP 39PF 5% 50V
C677	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C678	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C681	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C682	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C683	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C684	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C685	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C686	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C687	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C688	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C689	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C690	1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V
C691	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C692	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C693	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C694	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C695	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C696	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C701	1-164-346-11	s	CERAMIC 1uF 16V
C702	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C703	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C704	1-163-087-00	s	CERAMIC, CHIP 4PF 50V
C721	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C722	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C741	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C742	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C751	1-104-601-11	s	ELECT 10uF 20% 10V
C752	1-104-601-11	s	ELECT 10uF 20% 10V
C753	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C754	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C755	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C756	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C757	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C758	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C759	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C760	1-164-346-11	s	CERAMIC 1uF 16V
C761	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C762	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C763	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C764	1-164-346-11	s	CERAMIC 1uF 16V
C765	1-164-346-11	s	CERAMIC 1uF 16V
C766	1-104-601-11	s	ELECT 10uF 20% 10V
C767	1-104-601-11	s	ELECT 10uF 20% 10V
C768	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C769	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C770	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C771	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C772	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C773	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C774	1-164-346-11	s	CERAMIC 1uF 16V
C775	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C776	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C777	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V

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Ref. No. or Q'ty	Part No.	SP	Description
C778	1-164-346-11	s	CERAMIC 1uF 16V
C779	1-164-346-11	s	CERAMIC 1uF 16V
C780	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C781	1-163-243-11	■	CERAMIC, CHIP 47PF 5% 50V
C786	1-104-601-11	s	ELECT 10uF 20% 10V
C787	1-104-601-11	■	ELECT 10uF 20% 10V
C788	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C789	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C790	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C791	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C792	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C793	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C794	1-164-346-11	s	CERAMIC 1uF 16V
C795	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C796	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C797	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C798	1-164-346-11	■	CERAMIC 1uF 16V
C799	1-164-346-11	■	CERAMIC 1uF 16V
C800	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C801	1-164-346-11	s	CERAMIC 1uF 16V
C802	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C803	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C804	1-163-087-00	s	CERAMIC, CHIP 4PF 50V
C821	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C822	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C841	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C842	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C851	1-104-601-11	■	ELECT 10uF 20% 10V
C852	1-104-601-11	s	ELECT 10uF 20% 10V
C853	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C854	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C855	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C856	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C857	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C858	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C859	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C860	1-164-346-11	s	CERAMIC 1uF 16V
C861	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C862	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C863	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C864	1-164-346-11	s	CERAMIC 1uF 16V
C865	1-164-346-11	s	CERAMIC 1uF 16V
C866	1-104-601-11	s	ELECT 10uF 20% 10V
C867	1-104-601-11	s	ELECT 10uF 20% 10V
C868	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C869	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C870	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C871	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C872	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C873	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C874	1-164-346-11	s	CERAMIC 1uF 16V
C875	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C876	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C877	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C878	1-164-346-11	s	CERAMIC 1uF 16V
C879	1-164-346-11	s	CERAMIC 1uF 16V
C880	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C881	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C886	1-104-601-11	s	ELECT 10uF 20% 10V

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Ref. No. or Q'ty	Part No.	SP	Description
C887	1-104-601-11	■	ELECT 10uF 20% 10V
C888	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C889	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C890	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C891	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C892	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C893	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C894	1-164-346-11	s	CERAMIC 1uF 16V
C895	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C896	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C897	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C898	1-164-346-11	s	CERAMIC 1uF 16V
C899	1-164-346-11	s	CERAMIC 1uF 16V
C900	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C901	1-164-346-11	s	CERAMIC 1uF 16V
C902	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C903	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C904	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C905	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C906	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C907	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C908	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C909	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C910	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C911	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C912	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C913	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C914	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C915	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C916	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C917	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C918	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C919	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C920	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C921	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C922	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C923	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C924	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C925	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C930	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C931	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C932	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C933	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C934	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C935	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C936	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C937	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C938	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C939	1-163-235-11	■	CERAMIC, CHIP 22PF 5% 50V
C940	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C941	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C942	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C943	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C944	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C945	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C946	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C951	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C952	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C953	1-163-137-00	s	CERAMIC, CHIP 680PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C954	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C955	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C956	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C957	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C958	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C959	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C960	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C961	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C962	1-163-224-11	s	CERAMIC, CHIP 7PF 50V
C963	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C964	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C965	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C966	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C967	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C968	1-163-038-91	[illegible]	CERAMIC, CHIP 0.1uF 25V
C969	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C970	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C971	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C972	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C973	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C974	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C981	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C982	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1001	1-164-346-11	s	CERAMIC 1uF 16V
C1002	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C1003	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1004	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1005	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1006	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1007	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1008	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1009	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C1010	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1011	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C1012	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1013	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1014	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1015	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1016	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C1017	1-163-038-91	[illegible]	CERAMIC, CHIP 0.1uF 25V
C1018	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1019	1-163-251-11	s	CERAMIC, CHIP 100PF [illegible] 50V
C1020	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1021	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1022	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1023	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C1024	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1025	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1030	1-163-227-11	[illegible]	CERAMIC, CHIP 10PF 5% 50V
C1031	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1032	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1033	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1034	1-163-038-91	[illegible]	CERAMIC, CHIP 0.1uF 25V
C1035	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1036	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1037	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1038	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1039	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C1040	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C1041	1-163-038-91	[illegible]	CERAMIC, CHIP 0.1uF 25V
C1042	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1043	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1044	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1045	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1046	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1051	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1052	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C1053	1-163-137-00	s	CERAMIC, CHIP 680PF 5% 50V
C1054	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C1055	1-126-396-11	[illegible]	ELECT, CHIP 47uF 20% 16V
C1056	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C1057	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C1058	1-164-232-11	[illegible]	CERAMIC, CHIP 0.01uF 10% 100V
C1059	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1060	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1061	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C1062	1-163-224-11	s	CERAMIC, CHIP 7PF 50V
C1063	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C1064	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1065	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C1066	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1067	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1068	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1069	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1070	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1071	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1072	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1073	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1074	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1081	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1082	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
CN1-3	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CV101	1-141-229-00	s	CAP, TRIMMER 7PF
CV201	1-141-229-00	s	CAP, TRIMMER 7PF
D1	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D2	8-719-987-43	[illegible]	LED CL-150PG-CD, YEL-GRN
D3	8-719-104-34	s	DIODE 1S2835
D4	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D5	8-719-987-41	s	LED CL-150Y-CD, ORG
D6	8-719-987-41	s	LED CL-150Y-CD, ORG
D7	8-719-104-34	[illegible]	DIODE 1S2835
D8	8-719-104-34	s	DIODE 1S2835
D101	8-719-104-34	s	DIODE 1S2835
D102	8-719-104-34	s	DIODE 1S2835
D103	8-719-104-34	s	DIODE 1S2835
D106	8-719-104-34	s	DIODE 1S2835
D107	8-719-104-34	s	DIODE 1S2835
D111	8-719-104-34	s	DIODE 1S2835
D112	8-719-104-34	s	DIODE 1S2835
D113	8-719-104-34	s	DIODE 1S2835
D121	8-719-104-34	s	DIODE 1S2835
D123	8-719-105-57	[illegible]	DIODE RD3.9M-B1
D124	8-719-157-23	s	DIODE RD4.7M-B
D125	8-719-049-03	s	DIODE KV1851A-1
D126	8-719-049-03	s	DIODE KV1851A-1
D127	8-719-104-34	s	DIODE 1S2835

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Ref. No. or Q'ty	Part No.	SP	Description
D128	8-719-104-34	s	DIODE 1S2835
D201	8-719-104-34	s	DIODE 1S2835
D202	8-719-104-34	s	DIODE 1S2835
D203	8-719-104-34	■	DIODE 1S2835
D206	8-719-104-34	s	DIODE 1S2835
D207	8-719-104-34	s	DIODE 1S2835
D211	8-719-104-34	s	DIODE 1S2835
D212	8-719-104-34	s	DIODE 1S2835
D213	8-719-104-34	s	DIODE 1S2835
D221	8-719-104-34	■	DIODE 1S2835
D223	8-719-105-57	s	DIODE RD3.9M-B1
D224	8-719-157-23	s	DIODE RD4.7M-B
D225	8-719-049-03	s	DIODE KV1851A-1
D226	8-719-049-03	s	DIODE KV1851A-1
D227	8-719-104-34	s	DIODE 1S2835
D228	8-719-104-34	s	DIODE 1S2835
DL103	1-415-348-21	s	DELAY LINE 280NS
DL203	1-415-348-21	■	DELAY LINE 280NS
FB201	1-543-256-11	■	BEAD, FERRITE
FB901	1-543-256-11	s	BEAD, FERRITE
FL101	1-239-085-11	s	FILTER, LOW-PASS
FL102	1-239-085-11	■	FILTER, LOW-PASS
FL103	1-239-085-11	s	FILTER, LOW-PASS
FL111	1-235-758-11	s	FILTER, LOW-PASS
FL112	1-235-758-11	■	FILTER, LOW-PASS
FL113	1-239-085-11	s	FILTER, LOW-PASS
FL114	1-235-758-11	s	FILTER, LOW-PASS
FL115	1-235-758-11	s	FILTER, LOW-PASS
FL201	1-239-085-11	s	FILTER, LOW-PASS
FL202	1-239-085-11	s	FILTER, LOW-PASS
FL203	1-239-085-11	s	FILTER, LOW-PASS
FL211	1-235-758-11	s	FILTER, LOW-PASS
FL212	1-235-758-11	s	FILTER, LOW-PASS
FL213	1-239-085-11	■	FILTER, LOW-PASS
FL214	1-235-758-11	■	FILTER, LOW-PASS
FL215	1-235-758-11	s	FILTER, LOW-PASS
IC1	8-759-925-74	s	IC TC74HC04ANS
IC2	8-759-925-85	s	IC SN74HC32ANS
IC3	8-759-925-79	s	IC SN74HC11ANS
IC4	8-759-925-85	s	IC SN74HC32ANS
IC5	8-759-925-85	s	IC SN74HC32ANS
IC6	8-759-925-78	s	IC SN74HC10ANS
IC7	8-759-925-74	s	IC TC74HC04ANS
IC8	8-759-925-85	■	IC SN74HC32ANS
IC9	8-759-925-79	s	IC SN74HC11ANS
IC10	8-759-925-85	s	IC SN74HC32ANS
IC11	8-759-925-85	s	IC SN74HC32ANS
IC12	8-759-925-78	s	IC SN74HC10ANS
IC13	8-759-701-75	s	IC NJM7805FA
IC14	8-759-701-59	s	IC NJM7809FA
IC15	8-759-701-59	s	IC NJM7809FA
IC16	8-759-701-87	s	IC NJM7909FA
IC17	8-759-702-08	■	IC NJM360M
IC18	8-759-925-73	s	IC SN74HC03NS
IC19	8-759-987-27	s	IC LM1881M
IC20	8-759-300-71	■	IC HD14053BFP

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Ref. No. or Q'ty	Part No.	SP	Description
IC21	8-759-271-04	s	IC LT1252CS8
IC22	8-759-271-04	s	IC LT1252CS8
IC101	8-759-710-62	s	IC NJM2246M
IC102	8-759-710-62	s	IC NJM2246M
IC103	8-759-711-32	■	IC NJM2245M
IC104	8-759-256-44	s	IC NJM2235M-TE2
IC105	8-759-710-62	■	IC NJM2246M
IC106	8-759-710-07	s	IC NJM2234M
IC107	8-759-711-32	s	IC NJM2245M
IC108	8-759-710-07	s	IC NJM2234M
IC109	8-759-711-32	s	IC NJM2245M
IC122	8-752-334-55	s	IC CXD1175M
IC123	8-752-342-61	s	IC CXD2105AQ
IC124	8-759-256-44	s	IC NJM2235M-TE2
IC125	8-759-710-07	■	IC NJM2234M
IC126	8-759-987-27	s	IC LM1881M
IC127	8-759-111-69	s	IC UPC1037HA
IC128	8-759-238-87	■	IC TC4S66F(TE85R)
IC129	8-759-983-69	■	IC LM358PS
IC130	8-759-925-90	s	IC SN74HC74ANS
IC131	8-759-239-58	s	IC TC74HC221AF
IC132	8-759-926-07	s	IC SN74HC132ANS
IC133	8-759-256-44	s	IC NJM2235M-TE2
IC134	8-759-980-04	■	IC LM311PS
IC137	8-759-603-54	■	IC M51271FP
IC138	8-759-710-86	■	IC NJM2233BM-T1
IC139	8-759-710-86	s	IC NJM2233BM-T1
IC140	8-759-926-07	■	IC SN74HC132ANS
IC141	8-759-980-04	■	IC LM311PS
IC142	8-759-710-62	■	IC NJM2246M
IC143	8-759-711-32	s	IC NJM2245M
IC144	8-759-711-32	s	IC NJM2245M
IC145	8-752-334-55	s	IC CXD1175M
IC146	8-752-334-55	s	IC CXD1175M
IC147	8-752-334-55	s	IC CXD1175M
IC148	8-759-926-67	■	IC SN74HC374ANS
IC149	8-759-926-67	■	IC SN74HC374ANS
IC150	8-759-926-67	■	IC SN74HC374ANS
IC151	8-759-256-44	■	IC NJM2235M-TE2
IC152	8-759-980-04	s	IC LM311PS
IC153	8-759-987-27	s	IC LM1881M
IC154	8-759-239-58	■	IC TC74HC221AF
IC155	8-759-239-58	s	IC TC74HC221AF
IC156	8-759-927-46	s	IC SN74HC00ANS
IC157	8-759-239-58	s	IC TC74HC221AF
IC158	8-759-926-24	s	IC SN74HC164ANS
IC159	8-759-925-90	s	IC SN74HC74ANS
IC160	8-759-925-90	s	IC SN74HC74ANS
IC164	8-759-037-79	■	IC SN74HC163ANS-E05
IC165	8-759-037-79	s	IC SN74HC163ANS-E05
IC166	8-759-037-79	s	IC SN74HC163ANS-E05
IC167	8-759-925-74	s	IC TC74HC04ANS
IC168	8-759-925-81	s	IC SN74HC20ANS
IC169	8-759-927-46	s	IC SN74HC00ANS
IC170	8-759-925-78	s	IC SN74HC10ANS
IC171	8-759-239-58	s	IC TC74HC221AF
IC172	8-759-926-29	■	IC SN74HC175ANS
IC173	8-759-926-24	s	IC SN74HC164ANS
IC174	8-759-927-46	s	IC SN74HC00ANS

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Ref. No. or Q'ty	Part No.	SP	Description
IC175	8-759-239-58	s	IC TC74HC221AF
IC177	8-759-908-17	s	IC TL082CPS
IC178	8-759-926-48	s	IC SN74HC244NS
IC179	8-759-008-51	s	IC MC74HC113F
IC180	8-759-300-71	s	IC HD14053BFP
IC181	8-759-926-24	s	IC SN74HC164ANS
IC182	8-759-926-24	s	IC SN74HC164ANS
IC183	8-759-925-72	s	IC SN74HC02ANS
IC184	8-759-908-17	s	IC TL082CPS
IC201	8-759-710-62	s	IC NJM2246M
IC202	8-759-710-62	s	IC NJM2246M
IC203	8-759-711-32	s	IC NJM2245M
IC204	8-759-256-44	s	IC NJM2235M-TE2
IC205	8-759-710-62	s	IC NJM2246M
IC206	8-759-710-07	s	IC NJM2234M
IC207	8-759-711-32	s	IC NJM2245M
IC208	8-759-710-07	s	IC NJM2234M
IC209	8-759-711-32	s	IC NJM2245M
IC222	8-752-334-55	s	IC CXD1175M
IC223	8-752-342-61	s	IC CXD2105AQ
IC224	8-759-256-44	s	IC NJM2235M-TE2
IC225	8-759-710-07	s	IC NJM2234M
IC226	8-759-987-27	s	IC LM1881M
IC227	8-759-111-69	s	IC UPC1037HA
IC228	8-759-238-87	s	IC TC4S66F(TE85R)
IC229	8-759-983-69	s	IC LM358PS
IC230	8-759-925-90	s	IC SN74HC74ANS
IC231	8-759-239-58	s	IC TC74HC221AF
IC232	8-759-926-07	s	IC SN74HC132ANS
IC233	8-759-256-44	s	IC NJM2235M-TE2
IC234	8-759-980-04	s	IC LM311PS
IC237	8-759-603-54	s	IC M51271FP
IC238	8-759-710-86	s	IC NJM2233BM-T1
IC239	8-759-710-86	s	IC NJM2233BM-T1
IC240	8-759-926-07	s	IC SN74HC132ANS
IC241	8-759-980-04	s	IC LM311PS
IC242	8-759-710-62	s	IC NJM2246M
IC243	8-759-711-32	s	IC NJM2245M
IC244	8-759-711-32	s	IC NJM2245M
IC245	8-752-334-55	s	IC CXD1175M
IC246	8-752-334-55	s	IC CXD1175M
IC247	8-752-334-55	s	IC CXD1175M
IC248	8-759-926-67	s	IC SN74HC374ANS
IC249	8-759-926-67	s	IC SN74HC374ANS
IC250	8-759-926-67	s	IC SN74HC374ANS
IC251	8-759-256-44	s	IC NJM2235M-TE2
IC252	8-759-980-04	s	IC LM311PS
IC253	8-759-987-27	s	IC LM1881M
IC254	8-759-239-58	s	IC TC74HC221AF
IC255	8-759-239-58	s	IC TC74HC221AF
IC256	8-759-927-46	s	IC SN74HC00ANS
IC257	8-759-239-58	s	IC TC74HC221AF
IC258	8-759-926-24	s	IC SN74HC164ANS
IC259	8-759-925-90	s	IC SN74HC74ANS
IC260	8-759-925-90	s	IC SN74HC74ANS
IC264	8-759-037-79	s	IC SN74HC163ANS-E05
IC265	8-759-037-79	s	IC SN74HC163ANS-E05
IC266	8-759-037-79	s	IC SN74HC163ANS-E05
IC267	8-759-925-74	s	IC TC74HC04ANS

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Ref. No. or Q'ty	Part No.	SP	Description
IC268	8-759-925-81	s	IC SN74HC20ANS
IC269	8-759-927-46	s	IC SN74HC00ANS
IC270	8-759-925-78	s	IC SN74HC10ANS
IC271	8-759-239-58	s	IC TC74HC221AF
IC272	8-759-926-29	s	IC SN74HC175ANS
IC273	8-759-926-24	s	IC SN74HC164ANS
IC274	8-759-927-46	s	IC SN74HC00ANS
IC275	8-759-239-58	s	IC TC74HC221AF
IC277	8-759-908-17	s	IC TL082CPS
IC278	8-759-926-48	s	IC SN74HC244NS
IC279	8-759-008-51	s	IC MC74HC113F
IC280	8-759-300-71	s	IC HD14053BFP
IC281	8-759-926-24	s	IC SN74HC164ANS
IC282	8-759-926-24	s	IC SN74HC164ANS
IC283	8-759-925-72	s	IC SN74HC02ANS
IC284	8-759-908-17	s	IC TL082CPS
JR901	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR1001	1-216-295-91	s	RES, CHIP 0 5% 1/10W
L1	1-412-525-31	s	INDUCTOR 10uH
L2	1-412-525-31	s	INDUCTOR 10uH
L3	1-412-525-31	s	INDUCTOR 10uH
L4	1-408-789-21	s	INDUCTOR, CHIP 100uH
L101	1-408-789-21	s	INDUCTOR, CHIP 100uH
L102	1-408-785-21	s	INDUCTOR, CHIP 47uH
L103	1-408-785-21	s	INDUCTOR, CHIP 47uH
L104	1-408-789-21	s	INDUCTOR, CHIP 100uH
L105	1-408-787-00	s	INDUCTOR, CHIP 68uH
L106	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L107	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L111	1-408-797-11	s	INDUCTOR, CHIP 470uH
L112	1-408-785-21	s	INDUCTOR, CHIP 47uH
L113	1-408-782-11	s	INDUCTOR, CHIP 27uH
L114	1-408-785-21	s	INDUCTOR, CHIP 47uH
L115	1-408-782-11	s	INDUCTOR, CHIP 27uH
L116	1-408-785-21	s	INDUCTOR, CHIP 47uH
L117	1-408-785-21	s	INDUCTOR, CHIP 47uH
L118	1-408-785-21	s	INDUCTOR, CHIP 47uH
L121	1-408-785-21	s	INDUCTOR, CHIP 47uH
L122	1-408-785-21	s	INDUCTOR, CHIP 47uH
L123	1-408-785-21	s	INDUCTOR, CHIP 47uH
L124	1-408-785-21	s	INDUCTOR, CHIP 47uH
L125	1-408-785-21	s	INDUCTOR, CHIP 47uH
L126	1-408-785-21	s	INDUCTOR, CHIP 47uH
L131	1-408-787-00	s	INDUCTOR, CHIP 68uH
L132	1-408-765-21	s	INDUCTOR, CHIP 1uH
L201	1-408-789-21	s	INDUCTOR, CHIP 100uH
L202	1-408-785-21	s	INDUCTOR, CHIP 47uH
L203	1-408-785-21	s	INDUCTOR, CHIP 47uH
L204	1-408-789-21	s	INDUCTOR, CHIP 100uH
L205	1-408-787-00	s	INDUCTOR, CHIP 68uH
L206	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L207	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L211	1-408-797-11	s	INDUCTOR, CHIP 470uH
L212	1-408-785-21	s	INDUCTOR, CHIP 47uH
L213	1-408-782-11	s	INDUCTOR, CHIP 27uH
L214	1-408-785-21	s	INDUCTOR, CHIP 47uH
L215	1-408-782-11	s	INDUCTOR, CHIP 27uH
L216	1-408-785-21	s	INDUCTOR, CHIP 47uH

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Ref. No. or Q'ty	Part No.	SP	Description
L217	1-408-785-21	s	INDUCTOR, CHIP 47uH
L218	1-408-785-21	s	INDUCTOR, CHIP 47uH
L221	1-408-785-21	s	INDUCTOR, CHIP 47uH
L222	1-408-785-21	s	INDUCTOR, CHIP 47uH
L223	1-408-785-21	s	INDUCTOR, CHIP 47uH
L224	1-408-785-21	s	INDUCTOR, CHIP 47uH
L225	1-408-785-21	s	INDUCTOR, CHIP 47uH
L226	1-408-785-21	s	INDUCTOR, CHIP 47uH
L231	1-408-787-00	s	INDUCTOR, CHIP 68uH
L232	1-408-765-21	s	INDUCTOR, CHIP 1uH
LV101	1-410-286-11	s	INDUCTOR, VAR 1uH
LV201	1-410-286-11	s	INDUCTOR, VAR 1uH
PS1	⚠ 1-532-675-00	s	LINK, IC 1.5A
PS2	⚠ 1-532-605-00	s	LINK, IC 0.4A
PS3	⚠ 1-532-637-00	s	LINK, IC 1.0A
Q1	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q2	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q3	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q4	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q7	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q8	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q9	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q10	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q11	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q12	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q13	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q14	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q15	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q16	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q17	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q18	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q19	8-729-216-22	■	TRANSISTOR 2SA1162
Q20	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q21	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q22	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q23	8-729-216-22	■	TRANSISTOR 2SA1162
Q101	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q102	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q103	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q104	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q105	8-729-216-22	s	TRANSISTOR 2SA1162
Q106	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q107	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q108	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q111	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q112	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q113	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q114	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q115	8-729-216-22	s	TRANSISTOR 2SA1162
Q121	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q123	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q124	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q125	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q131	8-729-216-22	s	TRANSISTOR 2SA1162
Q132	8-729-216-22	s	TRANSISTOR 2SA1162
Q133	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6

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Ref. No. or Q'ty	Part No.	SP	Description
Q134	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q135	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q136	8-729-216-22	s	TRANSISTOR 2SA1162
Q137	8-729-216-22	s	TRANSISTOR 2SA1162
Q138	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q139	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q140	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q141	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q151	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q152	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q153	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q154	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q155	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q156	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q157	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q158	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q159	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q160	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q170	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q171	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q172	8-729-216-22	s	TRANSISTOR 2SA1162
Q173	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q174	8-729-116-64	■	TRANSISTOR 2SK508-K51
Q175	8-729-216-22	■	TRANSISTOR 2SA1162
Q176	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q177	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q178	8-729-216-22	s	TRANSISTOR 2SA1162
Q179	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q180	8-729-216-22	■	TRANSISTOR 2SA1162
Q181	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q182	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q183	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q191	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q192	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q193	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q194	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q195	8-729-216-22	s	TRANSISTOR 2SA1162
Q196	8-729-216-22	s	TRANSISTOR 2SA1162
Q197	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q198	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q201	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q202	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q203	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q204	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q205	8-729-216-22	s	TRANSISTOR 2SA1162
Q206	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q207	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q208	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q211	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q212	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q213	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q214	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q215	8-729-216-22	■	TRANSISTOR 2SA1162
Q221	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q223	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q224	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q225	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q231	8-729-216-22	s	TRANSISTOR 2SA1162
Q232	8-729-216-22	s	TRANSISTOR 2SA1162

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Ref. No. or Q'ty	Part No.	SP	Description
Q233	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q234	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q235	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q236	8-729-216-22	s	TRANSISTOR 2SA1162
Q237	8-729-216-22	s	TRANSISTOR 2SA1162
Q238	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q239	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q240	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q241	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q251	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q252	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q253	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q254	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q255	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q256	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q257	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q258	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q259	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q260	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q270	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q271	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q272	8-729-216-22	s	TRANSISTOR 2SA1162
Q273	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q274	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q275	8-729-216-22	s	TRANSISTOR 2SA1162
Q276	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q277	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q278	8-729-216-22	s	TRANSISTOR 2SA1162
Q279	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q280	8-729-216-22	s	TRANSISTOR 2SA1162
Q281	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q282	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q283	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q291	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q292	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q293	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q294	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q295	8-729-216-22	s	TRANSISTOR 2SA1162
Q296	8-729-216-22	s	TRANSISTOR 2SA1162
Q297	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q298	8-729-116-64	s	TRANSISTOR 2SK508-K51
R1-10	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R11	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R12	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R13	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R14	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R15	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R16	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R17	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R18	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R19	1-218-759-11	s	METAL, CHIP 200K 0.5% 1/10W
R20	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R21	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R22	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R23	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R24	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R25	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R26	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R27	1-208-801-11	s	METAL, CHIP 6.2K 0.5% 1/10W
R28	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R29	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R30	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R31	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R32	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R33	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R34	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R35	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R36	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R37	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R38	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R39	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R40	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R41	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R42	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R43	1-218-759-11	s	METAL, CHIP 200K 0.5% 1/10W
R44	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R45	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R46	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R47	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R48	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R49	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R50	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R51	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R52	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R53	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R54	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R55	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R56	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R57	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R58	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R59	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R60	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R61	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R62	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R63	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R64-72	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R73-86	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R87	1-216-377-11	s	METAL 4.7 5% 2W
R88	1-216-377-11	s	METAL 4.7 5% 2W
R89	1-216-371-00	s	METAL 1.5 5% 2W
R90	1-216-371-00	s	METAL 1.5 5% 2W
R91	1-216-377-11	s	METAL 4.7 5% 2W
R92	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R93	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R94	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R95	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R96	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R97	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R98	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R99	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R100	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R101	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R102	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R103	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R104	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R105	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R106	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R107	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R108	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R109	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R110	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R111	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R112	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R113	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R114	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R115	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R116	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R117	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R118	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R119	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R120	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R121	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R122	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R123	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R124	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R125	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R126	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R127	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R128	1-218-263-11	s	METAL 75 5% 1/2W
R129	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R130	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R131	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R132	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R133	1-218-772-11	s	METAL 680K 0.5% 1/10W
R134	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R135	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R136	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R137	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R138	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R139	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R140	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R141	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R142	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R143	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R144	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R145	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R146	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R147	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R148	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R151	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R152	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R153	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R154	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R155	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R156	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R157	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R158	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R159	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R160	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R161	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R162	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R163	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R164	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R165	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R166	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R167	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R168	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R169	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R170	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R171	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R201	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R202	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R203	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R204	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R205	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R206	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R207	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R208	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R209	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R210	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R211	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R212	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R213	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R214	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R215	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R216	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R217	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R218	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R219	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R220	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R221	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R222	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R223	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R224	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R225	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R226	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R227	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R301	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R302	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R303	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R304	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R305	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R306	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R307	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R308	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R309	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R310	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R311	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R312	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R313	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R314	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R315	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R316	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R317	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R318	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R319	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R320	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R321	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R322	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R323	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R324	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R325	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R326	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R327	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R328	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R329	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R330	1-218-776-11	s	METAL 1M 0.5% 1/10W
R331	1-216-637-11	■	METAL, CHIP 270 0.5% 1/10W
R332	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R333	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R334	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R335	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R336	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R337	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R338	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R339	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R340	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R341	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R342	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R343	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R344	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R345	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R346	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R347	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R348	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R349	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R350	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R351	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R352	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R353	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R354	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R355	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R356	1-218-772-11	s	METAL 680K 0.5% 1/10W
R357	1-208-812-11	s	METAL. CHIP 18K 0.5% 1/10W
R358	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R359	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R360	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R361	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R362	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R363	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R364	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R365	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R366	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R367	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R368	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R369	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R370	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R371	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R372	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R373	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R374	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R375	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R376	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R381	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R382	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R383	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R384	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R385	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R386	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R387	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R388	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R389	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R390	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R391	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R401	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R402	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R403	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R404	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R405	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R406	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R407	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R408	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R409	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R410	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R411	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R412	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R413	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R414	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R415	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R416	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R417	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R418	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R419	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R420	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R421	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R422	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R423	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R424	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R425	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R426	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R427	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R428	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R429	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R430	1-218-776-11	s	METAL 1M 0.5% 1/10W
R431	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R432	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R433	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R434	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R435	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R436	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R437	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R438	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R439	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R440	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R441	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R442	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R443	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R444	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R445	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R446	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R447	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R448	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R449	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R450	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R451	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R452	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R453	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R454	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R455	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R456	1-218-772-11	s	METAL 680K 0.5% 1/10W
R457	1-208-812-11	s	METAL, CHIP 18K 0.5% 1/10W
R458	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R459	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R460	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R461	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R462	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R463	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R464	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R465	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R466	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R467	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R468	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R469	1-208-814-11	■	METAL, CHIP 22K 0.5% 1/10W
R470	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R471	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R472	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R473	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R474	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R475	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R476	1-216-603-11	■	METAL, CHIP 10 0.5% 1/10W
R481	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R482	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R483	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R484	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R485	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R486	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R487	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R488	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R489	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R490	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R491	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R501	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R502	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R503	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R504	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R505	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R506	1-208-774-11	■	METAL, CHIP 470 0.5% 1/10W
R507	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R508	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R509	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R510	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R511	1-216-627-11	■	METAL, CHIP 100 0.5% 1/10W
R512	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R513	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R519	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R520	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R521	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R522	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R523	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R524	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R525	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R533	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R534	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R535	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R536	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R538	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R539	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R540	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R541	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R542	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R543	1-218-768-11	s	METAL 470K 0.5% 1/10W
R544	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R545	1-216-639-11	■	METAL, CHIP 330 0.5% 1/10W
R546	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R547	1-216-671-11	■	METAL, CHIP 6.8K 0.5% 1/10W
R548	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R549	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R550	1-208-814-11	■	METAL, CHIP 22K 0.5% 1/10W
R551	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R552	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R553	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R556	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R557	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R558	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R559	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R560	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R561	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R562	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R563	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R564	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R565	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R566	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R567	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R568	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R569	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R570	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R571	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R572	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R573	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R574	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R575	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R576	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R577	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R578	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R579	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R581	1-218-776-11	■	METAL 1M 0.5% 1/10W
R582	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R583	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R584	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R585	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R586	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R587	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R588	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R589	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R590	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R591	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R592	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R593	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R594	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R595	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R601	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R602	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R603	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R604	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R605	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R606	1-208-774-11	■	METAL, CHIP 470 0.5% 1/10W
R607	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R608	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R609	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R610	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R611	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R612	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R613	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R619	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R620	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R621	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R622	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R623	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R624	1-216-671-11	■	METAL, CHIP 6.8K 0.5% 1/10W
R625	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R633	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R634	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R635	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R636	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R638	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R639	1-216-675-11	s	METAL, CHIP.10K 0.5% 1/10W
R640	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R641	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R642	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R643	1-218-768-11	s	METAL 470K 0.5% 1/10W
R644	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R645	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R646	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R647	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R648	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R649	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R650	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R651	1-216-699-11	■	METAL, CHIP 100K 0.5% 1/10W
R652	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R653	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R656	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R657	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R658	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R659	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R660	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R661	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R662	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R663	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R664	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R665	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R666	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R667	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R668	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R669	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R670	1-216-671-11	■	METAL, CHIP 6.8K 0.5% 1/10W
R671	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R672	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R673	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R674	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R675	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R676	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R677	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R678	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R679	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R681	1-218-776-11	s	METAL 1M 0.5% 1/10W
R682	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R683	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R684	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R685	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R686	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R687	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R688	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R689	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R690	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R691	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R692	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R693	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R694	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R695	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R701	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R702	1-208-800-11	■	METAL, CHIP 5.6K 0.5% 1/10W
R703	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R704	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R705	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R706	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R707	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R708	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R709	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R710	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R711	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R712	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R713	1-216-652-11	s	METAL, CHIP 1.1K 0.5% 1/10W
R714	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R715	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R721	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R722	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R723	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R724	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R725	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R726	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R727	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R728	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R729	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R730	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R741	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R742	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R743	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R744	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R745	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R746	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R747	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R748	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R749	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R750	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R751	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R752	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R753	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R754	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R755	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R756	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R757	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R758	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R759	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R760	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R761	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R762	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R763	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R764	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R765	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R766	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R767	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R768	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R769	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R770	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R771	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R772	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R773	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R774	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R775	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R776	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R777	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R778	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R779	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R780	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R781	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R782	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R783	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R784	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R785	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R786	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R787	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R788	1-216-691-11	■	METAL, CHIP 47K 0.5% 1/10W
R789	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R790	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R791	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R792	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R793	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R794	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R795	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R796	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R797	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R798	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R799	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R801	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R802	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R803	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R804	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R805	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R806	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R807	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R808	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R809	1-216-627-11	■	METAL, CHIP 100 0.5% 1/10W
R810	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R811	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R812	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R813	1-216-652-11	s	METAL, CHIP 1.1K 0.5% 1/10W
R814	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R815	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R821	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R822	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R823	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R824	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R825	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R826	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R827	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R828	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R829	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R830	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R841	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R842	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R843	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R844	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R845	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R846	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R847	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R848	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R849	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R850	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R851	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R852	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R853	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R854	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R855	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R856	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R857	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R858	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R859	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R860	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R861	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R862	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R863	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R864	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R865	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R866	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R867	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R868	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R869	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R870	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R871	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R872	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R873	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R874	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R875	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R876	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R877	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R878	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R879	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R880	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R881	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R882	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R883	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R884	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R885	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R886	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R887	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R888	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R889	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R890	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R891	1-216-679-11	■	METAL, CHIP 15K 0.5% 1/10W
R892	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R893	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R894	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R895	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R896	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R897	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R898	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R899	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R901	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R902	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R903	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R904	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R905	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R906	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R907	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R908	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R909	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R910	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R911	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R912	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R913	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R914	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R915	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R916	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R917	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R918	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R919	1-218-772-11	s	METAL 680K 0.5% 1/10W
R920	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R921	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R922	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R923	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R924	1-208-800-11	■	METAL, CHIP 5.6K 0.5% 1/10W
R932	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R933	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R935	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R936	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R937	1-218-754-11	s	METAL, CHIP 120K 0.50% 1/10W
R938	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R941	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R942	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R943	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R944	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R946	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R947	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R948	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R949	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R950	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R951	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R952	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R953	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R954	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R955	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R956	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R957	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R958	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R959	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R960	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R961	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R962	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R963	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R964	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R965	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R966	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R988	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R989	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R991	1-216-687-11	■	METAL, CHIP 33K 0.5% 1/10W
R992	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R1006	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1007	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1008	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R1009	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1010	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1011	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R1012	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R1013	1-218-764-11	■	METAL, CHIP 330K 0.5% 1/10W
R1014	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1015	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R1016	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1017	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R1018	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1019	1-218-772-11	s	METAL 680K 0.5% 1/10W
R1020	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R1021	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R1022	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R1023	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1024	1-208-800-11	■	METAL, CHIP 5.6K 0.5% 1/10W
R1032	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R1033	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R1035	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R1036	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R1037	1-218-754-11	s	METAL, CHIP 120K 0.50% 1/10W
R1038	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1041	1-216-677-11	■	METAL, CHIP 12K 0.5% 1/10W
R1042	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R1043	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R1044	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1046	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1047	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R1048	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1049	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R1050	1-216-687-11	■	METAL, CHIP 33K 0.5% 1/10W
R1051	1-208-814-11	■	METAL, CHIP 22K 0.5% 1/10W
R1052	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R1053	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R1054	1-218-760-11	■	METAL, CHIP 220K 0.5% 1/10W
R1055	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R1056	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R1057	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R1058	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R1059	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R1060	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1061	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R1062	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R1063	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1064	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1065	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R1066	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R1088	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R1089	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R1091	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R1092	1-216-687-11	■	METAL, CHIP 33K 0.5% 1/10W
RB201	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RB202	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RB203	1-239-305-11	■	RESISTOR BLOCK, CHIP 4.7kx4
RB501	1-239-305-11	■	RESISTOR BLOCK, CHIP 4.7kx4
RB502	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4

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Ref. No. or Q'ty	Part No.	SP	Description
RB503	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RV1	1-241-762-11	s	RES, ADJ METAL 2.2k
RV2	1-241-762-11	s	RES, ADJ METAL 2.2k
RV3	1-241-762-11	s	RES, ADJ METAL 2.2k
RV4	1-241-761-11	s	RES, ADJ METAL 1K
RV5	1-241-785-11	s	RES, ADJ METAL 10k
RV101	1-241-763-11	s	RES, ADJ METAL 4.7K
RV102	1-241-763-11	s	RES, ADJ METAL 4.7K
RV103	1-241-764-11	s	RES, ADJ METAL 10K
RV111	1-241-759-21	s	RES, ADJ METAL 220
RV112	1-241-761-11	s	RES, ADJ METAL 1K
RV113	1-241-763-11	s	RES, ADJ METAL 4.7K
RV114	1-241-760-21	s	RES, ADJ METAL 470
RV115	1-241-760-21	s	RES, ADJ METAL 470
RV116	1-241-761-11	s	RES, ADJ METAL 1K
RV117	1-241-759-21	s	RES, ADJ METAL 220
RV118	1-241-760-21	s	RES, ADJ METAL 470
RV119	1-241-760-21	s	RES, ADJ METAL 470
RV120	1-241-760-21	s	RES, ADJ METAL 470
RV121	1-241-762-11	s	RES, ADJ METAL 2.2k
RV122	1-241-760-21	s	RES, ADJ METAL 470
RV123	1-241-760-21	s	RES, ADJ METAL 470
RV124	1-241-762-11	s	RES, ADJ METAL 2.2k
RV125	1-241-760-21	s	RES, ADJ METAL 470
RV131	1-241-763-11	s	RES, ADJ METAL 4.7K
RV201	1-241-763-11	s	RES, ADJ METAL 4.7K
RV202	1-241-763-11	s	RES, ADJ METAL 4.7K
RV203	1-241-764-11	s	RES, ADJ METAL 10K
RV211	1-241-759-21	s	RES, ADJ METAL 220
RV212	1-241-761-11	s	RES, ADJ METAL 1K
RV213	1-241-763-11	s	RES, ADJ METAL 4.7K
RV214	1-241-760-21	s	RES, ADJ METAL 470
RV215	1-241-760-21	s	RES, ADJ METAL 470
RV216	1-241-761-11	s	RES, ADJ METAL 1K
RV217	1-241-759-21	s	RES, ADJ METAL 220
RV218	1-241-760-21	s	RES, ADJ METAL 470
RV219	1-241-760-21	s	RES, ADJ METAL 470
RV220	1-241-760-21	s	RES, ADJ METAL 470
RV221	1-241-762-11	s	RES, ADJ METAL 2.2k
RV222	1-241-760-21	s	RES, ADJ METAL 470
RV223	1-241-760-21	s	RES, ADJ METAL 470
RV224	1-241-762-11	s	RES, ADJ METAL 2.2k
RV225	1-241-760-21	s	RES, ADJ METAL 470
RV231	1-241-763-11	s	RES, ADJ METAL 4.7K
S1-4	1-571-060-11	s	SWITCH, SLIDE
X101	1-760-267-11	s	VCO, CRYSTAL 14.318180MHz
X102	1-567-866-11	s	CRYSTAL, 14.31818MHz
X201	1-760-267-11	s	VCO, CRYSTAL 14.318180MHz
X202	1-567-866-11	s	CRYSTAL, 14.31818MHz

AD-104P BOARD FOR EK

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-714-A	o	MOUNTED CIRCUIT BOARD, AD-104P
2pcs	3-166-184-01	o	LEVER, PC BOARD
2pcs	3-166-185-01	s	NUT, PLATE
1pc	4-886-821-11	s	SCREW, S TIGHT, +PTTWH 3X6
4pcs	7-621-773-87	s	SCREW +B 2.6X10
2pcs	7-626-320-11	s	PIN, SPRING 3X8
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
C1	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C2	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C3	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C4	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C5	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C6	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C7	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C8	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C9-21	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C22	1-126-934-11	s	ELECT 220uF 20% 16V
C23	1-164-346-11	s	CERAMIC 1uF 16V
C24	1-126-934-11	s	ELECT 220uF 20% 16V
C25	1-164-346-11	s	CERAMIC 1uF 16V
C26	1-126-934-11	s	ELECT 220uF 20% 16V
C27	1-164-346-11	s	CERAMIC 1uF 16V
C28	1-164-346-11	s	CERAMIC 1uF 16V
C29	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C30	1-126-934-11	s	ELECT 220uF 20% 16V
C31	1-164-346-11	s	CERAMIC 1uF 16V
C32	1-164-346-11	s	CERAMIC 1uF 16V
C33	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C34	1-126-934-11	s	ELECT 220uF 20% 16V
C35	1-164-346-11	s	CERAMIC 1uF 16V
C36	1-164-346-11	s	CERAMIC 1uF 16V
C37	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C38	1-126-934-11	s	ELECT 220uF 20% 16V
C39	1-164-346-11	s	CERAMIC 1uF 16V
C40	1-126-934-11	s	ELECT 220uF 20% 16V
C41	1-164-346-11	s	CERAMIC 1uF 16V
C42	1-126-934-11	s	ELECT 220uF 20% 16V
C43	1-164-346-11	s	CERAMIC 1uF 16V
C44	1-164-346-11	s	CERAMIC 1uF 16V
C45	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C46	1-126-925-11	s	ELECT 470uF 20% 10V
C47	1-164-346-11	s	CERAMIC 1uF 16V
C48	1-126-925-11	s	ELECT 470uF 20% 10V
C49	1-164-346-11	s	CERAMIC 1uF 16V
C50	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C51	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C52	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C53	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C54	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C55	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C56	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C57	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C58	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C59	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C60	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C61	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C62	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C63	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C64	1-104-601-11	s	ELECT 10uF 20% 10V
C65-70	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C71	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C72	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C73-76	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C77	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C101	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C102	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C103	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C104	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C105	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C106	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C107	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C108	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C109	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C110	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C111	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C112	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C113	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C114	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C115	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C116	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C117	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C118	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C119	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C120	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C121	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C122	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C123	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C124	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C125	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C126	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C127	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C128	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C129	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C130	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C131	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C132	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C133	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C134	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C135	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C136	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C137	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C138	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C139	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C140	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C141	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C142	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C143	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C144	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C145	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C201	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C202	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C203	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C204	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C207	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C208	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C209	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C211	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C212	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C213	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C214	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C215	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C216	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C217	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C218	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C219	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C220	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C221	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C222	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C223	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C224	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C225	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C226	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C227	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C228	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C229	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C230	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C231	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C232	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C233	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C234	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C235	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C236	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C237	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C238	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C239	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C240	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C241	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C242	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C243	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C244	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C245	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C301	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C302	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C303	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C304	1-163-227-11	■	CERAMIC, CHIP 10PF 5% 50V
C305	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C306	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C307	1-164-346-11	s	CERAMIC 1uF 16V
C308	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C309	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C310	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C311	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C312	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C313	1-164-346-11	s	CERAMIC 1uF 16V
C314	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C316	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C317	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C318	1-163-133-00	■	CERAMIC, CHIP 470PF 5% 50V
C319	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C320	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C321	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C322	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C323	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C324	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C325	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C326	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C327	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C328	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C329	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C330	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C331	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C332	1-163-222-11	■	CERAMIC, CHIP 5PF 50V
C341	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C342	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C343	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C344	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C345	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C346	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C347	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C351	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C352	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C353	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C354	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C355	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C356	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C357	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C358	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C359	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C360	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C361	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C362	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C363	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C364	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C365	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C366	1-164-346-11	■	CERAMIC 1uF 16V
C367	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C368	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C369	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C370	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C371	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C381	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C382	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C383	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C384	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C385	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C386	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C387	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C388	1-163-121-00	■	CERAMIC, CHIP 150PF 5% 50V
C389	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C390	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C391	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C392	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C401	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C402	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C403	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C404	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C405	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C406	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C407	1-164-346-11	s	CERAMIC 1uF 16V
C408	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C409	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C410	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C411	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C412	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C413	1-164-346-11	s	CERAMIC 1uF 16V
C414	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C415	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C416	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C417	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C418	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C419	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C420	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C421	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C422	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C423	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C424	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C425	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C426	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C427	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C428	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C429	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C430	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C431	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C432	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C441	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C442	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C443	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C444	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C445	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C446	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C447	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C451	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C452	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C453	1-163-133-00	■	CERAMIC, CHIP 470PF 5% 50V
C454	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C455	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C456	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C457	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C458	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C459	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C460	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C461	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C462	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C463	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C464	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C465	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C466	1-164-346-11	s	CERAMIC 1uF 16V
C467	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C468	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C469	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C470	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C471	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C481	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C482	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C483	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C484	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C485	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C486	1-163-239-11	■	CERAMIC, CHIP 33PF 5% 50V
C487	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C488	1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C489	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C490	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C491	1-163-235-11	■	CERAMIC, CHIP 22PF 5% 50V
C492	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C501	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C502	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C503	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C504	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C505	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C506	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C507	1-164-346-11	s	CERAMIC 1uF 16V
C508	1-164-346-11	s	CERAMIC 1uF 16V
C509	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C510	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C512	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C521	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C522	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C523	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C524	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C525	1-164-346-11	s	CERAMIC 1uF 16V
C526	1-164-005-11	■	CERAMIC, CHIP 0.47uF 25V
C527	1-164-346-11	s	CERAMIC 1uF 16V
C528	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C529	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C530	1-164-346-11	s	CERAMIC 1uF 16V
C531	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C532	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C533	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C534	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C535	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C536	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C537	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C538	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C539	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C540	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C541	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C542	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C543	1-163-089-00	s	CERAMIC, CHIP 6PF 50V
C544	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C545	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C546	1-163-275-11	■	CERAMIC, CHIP 0.001uF 5% 50V
C547	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C548	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C549	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C560	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C561	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C562	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C563	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C564	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C565	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C566	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C571	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C572	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C573	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C574	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C575	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C576	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C577	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C578	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C581	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C582	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C583	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C584	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C585	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C586	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C587	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C588	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C589	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C590	1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V
C591	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C592	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C593	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C594	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C595	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C596	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C601	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C602	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C603	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C604	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C605	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C606	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C607	1-164-346-11	s	CERAMIC 1uF 16V
C608	1-164-346-11	s	CERAMIC 1uF 16V
C609	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C610	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C612	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C621	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C622	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C623	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C624	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C625	1-164-346-11	s	CERAMIC 1uF 16V
C626	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C627	1-164-346-11	s	CERAMIC 1uF 16V
C628	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C629	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C630	1-164-346-11	s	CERAMIC 1uF 16V
C631	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C632	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C633	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C634	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C635	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C636	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C637	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C638	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C639	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C640	1-163-275-11	■	CERAMIC, CHIP 0.001uF 5% 50V
C641	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C642	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C643	1-163-089-00	■	CERAMIC, CHIP 6PF 50V
C644	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C645	1-163-275-11	■	CERAMIC, CHIP 0.001uF 5% 50V
C646	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C647	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C648	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C649	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C660	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C661	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C662	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C663	1-126-398-11	s	ELECT, CHIP 4.7uF 20% 35V
C664	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C665	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C666	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C671	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C672	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C673	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C674	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C675	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C676	1-163-243-11	■	CERAMIC, CHIP 47PF 5% 50V
C677	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C678	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C681	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C682	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C683	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C684	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C685	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C686	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C687	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C688	1-163-239-11	■	CERAMIC, CHIP 33PF 5% 50V
C689	1-163-239-11	s	CERAMIC, CHIP 33PF [illegible] 50V
C690	1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V
C691	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C692	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C693	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C694	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C695	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C696	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C701	1-164-346-11	s	CERAMIC 1uF 16V
C702	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C703	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C704	1-163-087-00	s	CERAMIC, CHIP 4PF 50V
C721	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C722	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C741	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C742	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C751	1-104-601-11	s	ELECT 10uF 20% 10V
C752	1-104-601-11	s	ELECT 10uF 20% 10V
C753	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C754	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C755	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C756	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C757	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C758	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C759	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C760	1-164-346-11	s	CERAMIC 1uF 16V
C761	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C762	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C763	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C764	1-164-346-11	s	CERAMIC 1uF 16V
C765	1-164-346-11	s	CERAMIC 1uF 16V
C766	1-104-601-11	s	ELECT 10uF 20% 10V
C767	1-104-601-11	■	ELECT 10uF 20% 10V
C768	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C769	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C770	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C771	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C772	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C773	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V

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Ref. No. or Q'ty	Part No.	SP	Description
C774	1-164-346-11	s	CERAMIC 1uF 16V
C775	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C776	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C777	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C778	1-164-346-11	s	CERAMIC 1uF 16V
C779	1-164-346-11	s	CERAMIC 1uF 16V
C780	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C781	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C786	1-104-601-11	s	ELECT 10uF 20% 10V
C787	1-104-601-11	s	ELECT 10uF 20% 10V
C788	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C789	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C790	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C791	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C792	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C793	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C794	1-164-346-11	■	CERAMIC 1uF 16V
C795	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C796	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C797	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C798	1-164-346-11	s	CERAMIC 1uF 16V
C799	1-164-346-11	■	CERAMIC 1uF 16V
C800	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C801	1-164-346-11	s	CERAMIC 1uF 16V
C802	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C803	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C804	1-163-087-00	■	CERAMIC, CHIP 4PF 50V
C821	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C822	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C841	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C842	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C851	1-104-601-11	■	ELECT 10uF 20% 10V
C852	1-104-601-11	s	ELECT 10uF 20% 10V
C853	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C854	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C855	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C856	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C857	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C858	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C859	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C860	1-164-346-11	s	CERAMIC 1uF 16V
C861	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C862	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C863	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C864	1-164-346-11	s	CERAMIC 1uF 16V
C865	1-164-346-11	s	CERAMIC 1uF 16V
C866	1-104-601-11	s	ELECT 10uF 20% 10V
C867	1-104-601-11	s	ELECT 10uF 20% 10V
C868	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C869	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C870	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C871	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C872	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C873	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C874	1-164-346-11	■	CERAMIC 1uF 16V
C875	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C876	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C877	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C878	1-164-346-11	■	CERAMIC 1uF 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C879	1-164-346-11	s	CERAMIC 1uF 16V
C880	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C881	1-163-243-11	■	CERAMIC, CHIP 47PF 5% 50V
C886	1-104-601-11	s	ELECT 10uF 20% 10V
C887	1-104-601-11	s	ELECT 10uF 20% 10V
C888	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C889	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C890	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C891	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C892	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C893	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C894	1-164-346-11	s	CERAMIC 1uF 16V
C895	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C896	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C897	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C898	1-164-346-11	s	CERAMIC 1uF 16V
C899	1-164-346-11	s	CERAMIC 1uF 16V
C900	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C901	1-164-346-11	s	CERAMIC 1uF 16V
C902	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C903	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C904	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C905	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C906	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C907	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C908	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C909	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C910	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C911	1-126-392-11	■	ELECT, CHIP 100uF 20% 6.3V
C912	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C913	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C914	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C915	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C916	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C917	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C918	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C919	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C920	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C921	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C922	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C923	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C924	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C925	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C930	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C931	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C932	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C933	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C934	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C935	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C936	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C937	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C938	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C939	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C940	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C941	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C942	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C943	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C944	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C945	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C946	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C951	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C952	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C953	1-163-137-00	s	CERAMIC, CHIP 680PF 5% 50V
C954	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C955	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C956	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C957	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C958	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C959	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C960	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C961	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C962	1-163-224-11	s	CERAMIC, CHIP 7PF 50V
C963	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C964	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C965	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C966	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C967	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C968	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C969	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C970	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C971	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C972	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C973	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C974	1-163-251-11	s	CERAMIC, CHIP 100PF [illegible] 50V
C981	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C982	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1001	1-164-346-11	■	CERAMIC 1uF 16V
C1002	1-126-394-11	■	ELECT, CHIP 10uF 20% 16V
C1003	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1004	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1005	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1006	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1007	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1008	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C1009	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C1010	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1011	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C1012	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1013	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1014	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1015	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1016	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C1017	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1018	1-163-251-11	■	CERAMIC, CHIP 100PF 5% 50V
C1019	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1020	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1021	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1022	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1023	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C1024	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1025	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1030	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C1031	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1032	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1033	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1034	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1035	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1036	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C1037	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1038	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1039	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C1040	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1041	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1042	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1043	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1044	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1045	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1046	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1051	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1052	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C1053	1-163-137-00	s	CERAMIC, CHIP 680PF 5% 50V
C1054	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C1055	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C1056	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C1057	1-164-005-11	■	CERAMIC, CHIP 0.47uF 25V
C1058	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C1059	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1060	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1061	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C1062	1-163-224-11	■	CERAMIC, CHIP 7PF 50V
C1063	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C1064	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1065	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C1066	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1067	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1068	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1069	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1070	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1071	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1072	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C1073	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C1074	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1081	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C1082	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
CN1-3	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CV101	1-141-229-00	s	CAP, TRIMMER 7PF
CV201	1-141-229-00	s	CAP, TRIMMER 7PF
D1	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D2	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D3	8-719-104-34	s	DIODE 1S2835
D4	8-719-987-43	■	LED CL-150PG-CD, YEL-GRN
D5	8-719-987-41	s	LED CL-150Y-CD, ORG
D6	8-719-987-41	s	LED CL-150Y-CD, ORG
D7	8-719-104-34	s	DIODE 1S2835
D8	8-719-104-34	s	DIODE 1S2835
D101	8-719-104-34	■	DIODE 1S2835
D102	8-719-104-34	s	DIODE 1S2835
D103	8-719-104-34	s	DIODE 1S2835
D104	8-719-049-03	s	DIODE KV1851A-1
D106	8-719-104-34	s	DIODE 1S2835
D107	8-719-104-34	s	DIODE 1S2835
D111	8-719-104-34	s	DIODE 1S2835
D112	8-719-104-34	s	DIODE 1S2835
D113	8-719-104-34	s	DIODE 1S2835
D121	8-719-104-34	s	DIODE 1S2835

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Ref. No. or Q'ty	Part No.	SP	Description
D123	8-719-105-57	s	DIODE RD3.9M-B1
D124	8-719-157-23	s	DIODE RD4.7M-B
D125	8-719-049-03	s	DIODE KV1851A-1
D126	8-719-049-03	s	DIODE KV1851A-1
D127	8-719-104-34	■	DIODE 1S2835
D128	8-719-104-34	■	DIODE 1S2835
D201	8-719-104-34	s	DIODE 1S2835
D202	8-719-104-34	s	DIODE 1S2835
D203	8-719-104-34	■	DIODE 1S2835
D204	8-719-049-03	s	DIODE KV1851A-1
D206	8-719-104-34	s	DIODE 1S2835
D207	8-719-104-34	s	DIODE 1S2835
D211	8-719-104-34	s	DIODE 1S2835
D212	8-719-104-34	s	DIODE 1S2835
D213	8-719-104-34	s	DIODE 1S2835
D221	8-719-104-34	s	DIODE 1S2835
D223	8-719-105-57	s	DIODE RD3.9M-B1
D224	8-719-157-23	■	DIODE RD4.7M-B
D225	8-719-049-03	s	DIODE KV1851A-1
D226	8-719-049-03	s	DIODE KV1851A-1
D227	8-719-104-34	s	DIODE 1S2835
D228	8-719-104-34	■	DIODE 1S2835
DL103	1-415-348-21	s	DELAY LINE 280NS
DL203	1-415-348-21	s	DELAY LINE 280NS
FB201	1-543-256-11	s	BEAD, FERRITE
FB901	1-543-256-11	s	BEAD, FERRITE
FL101	1-239-085-11	s	FILTER, LOW-PASS
FL102	1-239-085-11	s	FILTER, LOW-PASS
FL103	1-239-085-11	s	FILTER, LOW-PASS
FL111	1-235-758-11	s	FILTER, LOW-PASS
FL112	1-235-758-11	s	FILTER, LOW-PASS
FL113	1-239-085-11	s	FILTER, LOW-PASS
FL114	1-235-758-11	s	FILTER, LOW-PASS
FL115	1-235-758-11	s	FILTER, LOW-PASS
FL201	1-239-085-11	s	FILTER, LOW-PASS
FL202	1-239-085-11	s	FILTER, LOW-PASS
FL203	1-239-085-11	s	FILTER, LOW-PASS
FL211	1-235-758-11	s	FILTER, LOW-PASS
FL212	1-235-758-11	s	FILTER, LOW-PASS
FL213	1-239-085-11	s	FILTER, LOW-PASS
FL214	1-235-758-11	s	FILTER, LOW-PASS
FL215	1-235-758-11	s	FILTER, LOW-PASS
IC1	8-759-925-74	s	IC TC74HC04ANS
IC2	8-759-925-85	s	IC SN74HC32ANS
IC3	8-759-925-79	s	IC SN74HC11ANS
IC4	8-759-925-85	s	IC SN74HC32ANS
IC5	8-759-925-85	s	IC SN74HC32ANS
IC6	8-759-925-78	s	IC SN74HC10ANS
IC7	8-759-925-74	s	IC TC74HC04ANS
IC8	8-759-925-85	s	IC SN74HC32ANS
IC9	8-759-925-79	s	IC SN74HC11ANS
IC10	8-759-925-85	s	IC SN74HC32ANS
IC11	8-759-925-85	s	IC SN74HC32ANS
IC12	8-759-925-78	s	IC SN74HC10ANS
IC13	8-759-701-75	s	IC NJM7805FA
IC14	8-759-701-59	s	IC NJM7809FA
IC15	8-759-701-59	s	IC NJM7809FA

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Ref. No. or Q'ty	Part No.	SP	Description
IC16	8-759-701-87	s	IC NJM7909FA
IC17	8-759-702-08	s	IC NJM360M
IC18	8-759-925-73	s	IC SN74HC03NS
IC19	8-759-987-27	s	IC LM1881M
IC20	8-759-300-71	s	IC HD14053BFP
IC21	8-759-271-04	s	IC LT1252CS8
IC22	8-759-271-04	■	IC LT1252CS8
IC101	8-759-710-62	■	IC NJM2246M
IC102	8-759-710-62	s	IC NJM2246M
IC103	8-759-711-32	■	IC NJM2245M
IC104	8-759-256-44	s	IC NJM2235M-TE2
IC105	8-759-710-62	s	IC NJM2246M
IC106	8-759-710-07	s	IC NJM2234M
IC107	8-759-711-32	s	IC NJM2245M
IC108	8-759-710-07	■	IC NJM2234M
IC109	8-759-711-32	s	IC NJM2245M
IC122	8-752-334-55	s	IC CXD1175M
IC123	8-752-342-61	s	IC CXD2105AQ
IC124	8-759-256-44	s	IC NJM2235M-TE2
IC125	8-759-710-07	s	IC NJM2234M
IC126	8-759-987-27	s	IC LM1881M
IC127	8-759-111-69	s	IC UPC1037HA
IC128	8-759-238-87	s	IC TC4S66F(TE85R)
IC129	8-759-983-69	s	IC LM358PS
IC130	8-759-925-90	s	IC SN74HC74ANS
IC131	8-759-239-58	s	IC TC74HC221AF
IC132	8-759-926-07	s	IC SN74HC132ANS
IC133	8-759-256-44	s	IC NJM2235M-TE2
IC134	8-759-980-04	s	IC LM311PS
IC135	8-759-239-58	■	IC TC74HC221AF
IC136	8-759-038-46	s	IC TC7S00F-TE85L
IC137	8-759-603-54	■	IC M51271FP
IC138	8-759-710-86	s	IC NJM2233BM-T1
IC139	8-759-710-86	■	IC NJM2233BM-T1
IC140	8-759-926-07	s	IC SN74HC132ANS
IC141	8-759-980-04	s	IC LM311PS
IC142	8-759-710-62	s	IC NJM2246M
IC143	8-759-711-32	s	IC NJM2245M
IC144	8-759-711-32	s	IC NJM2245M
IC145	8-752-334-55	s	IC CXD1175M
IC146	8-752-334-55	s	IC CXD1175M
IC147	8-752-334-55	s	IC CXD1175M
IC148	8-759-926-67	s	IC SN74HC374ANS
IC149	8-759-926-67	s	IC SN74HC374ANS
IC150	8-759-926-67	s	IC SN74HC374ANS
IC151	8-759-256-44	s	IC NJM2235M-TE2
IC152	8-759-980-04	s	IC LM311PS
IC153	8-759-987-27	s	IC LM1881M
IC154	8-759-239-58	s	IC TC74HC221AF
IC155	8-759-239-58	s	IC TC74HC221AF
IC156	8-759-927-46	s	IC SN74HC00ANS
IC157	8-759-239-58	s	IC TC74HC221AF
IC158	8-759-926-24	s	IC SN74HC164ANS
IC159	8-759-925-90	s	IC SN74HC74ANS
IC160	8-759-925-90	s	IC SN74HC74ANS
IC164	8-759-037-79	s	IC SN74HC163ANS-E05
IC165	8-759-037-79	s	IC SN74HC163ANS-E05
IC166	8-759-037-79	s	IC SN74HC163ANS-E05
IC167	8-759-925-74	s	IC TC74HC04ANS

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Ref. No. or Q'ty	Part No.	SP	Description
IC168	8-759-925-81	s	IC SN74HC20ANS
IC169	8-759-927-46	■	IC SN74HC00ANS
IC170	8-759-925-78	s	IC SN74HC10ANS
IC171	8-759-239-58	s	IC TC74HC221AF
IC172	8-759-926-29	s	IC SN74HC175ANS
IC173	8-759-926-24	s	IC SN74HC164ANS
IC174	8-759-927-46	s	IC SN74HC00ANS
IC175	8-759-239-58	s	IC TC74HC221AF
IC177	8-759-908-17	s	IC TL082CPS
IC178	8-759-926-48	s	IC SN74HC244NS
IC179	8-759-008-51	s	IC MC74HC113F
IC180	8-759-300-71	s	IC HD14053BFP
IC181	8-759-926-24	s	IC SN74HC164ANS
IC182	8-759-926-24	s	IC SN74HC164ANS
IC183	8-759-925-72	s	IC SN74HC02ANS
IC184	8-759-908-17	s	IC TL082CPS
IC201	8-759-710-62	s	IC NJM2246M
IC202	8-759-710-62	s	IC NJM2246M
IC203	8-759-711-32	s	IC NJM2245M
IC204	8-759-256-44	s	IC NJM2235M-TE2
IC205	8-759-710-62	■	IC NJM2246M
IC206	8-759-710-07	s	IC NJM2234M
IC207	8-759-711-32	s	IC NJM2245M
IC208	8-759-710-07	s	IC NJM2234M
IC209	8-759-711-32	s	IC NJM2245M
IC222	8-752-334-55	s	IC CXD1175M
IC223	8-752-342-61	■	IC CXD2105AQ
IC224	8-759-256-44	s	IC NJM2235M-TE2
IC225	8-759-710-07	s	IC NJM2234M
IC226	8-759-987-27	s	IC LM1881M
IC227	8-759-111-69	s	IC UPC1037HA
IC228	8-759-238-87	s	IC TC4S66F(TE85R)
IC229	8-759-983-69	■	IC LM358PS
IC230	8-759-925-90	s	IC SN74HC74ANS
IC231	8-759-239-58	■	IC TC74HC221AF
IC232	8-759-926-07	s	IC SN74HC132ANS
IC233	8-759-256-44	s	IC NJM2235M-TE2
IC234	8-759-980-04	s	IC LM311PS
IC235	8-759-239-58	s	IC TC74HC221AF
IC236	8-759-038-46	s	IC TC7S00F-TE85L
IC237	8-759-603-54	■	IC M51271FP
IC238	8-759-710-86	s	IC NJM2233BM-T1
IC239	8-759-710-86	s	IC NJM2233BM-T1
IC240	8-759-926-07	■	IC SN74HC132ANS
IC241	8-759-980-04	s	IC LM311PS
IC242	8-759-710-62	s	IC NJM2246M
IC243	8-759-711-32	s	IC NJM2245M
IC244	8-759-711-32	s	IC NJM2245M
IC245	8-752-334-55	s	IC CXD1175M
IC246	8-752-334-55	s	IC CXD1175M
IC247	8-752-334-55	s	IC CXD1175M
IC248	8-759-926-67	s	IC SN74HC374ANS
IC249	8-759-926-67	s	IC SN74HC374ANS
IC250	8-759-926-67	s	IC SN74HC374ANS
IC251	8-759-256-44	s	IC NJM2235M-TE2
IC252	8-759-980-04	s	IC LM311PS
IC253	8-759-987-27	s	IC LM1881M
IC254	8-759-239-58	s	IC TC74HC221AF
IC255	8-759-239-58	s	IC TC74HC221AF

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Ref. No. or Q'ty	Part No.	SP	Description
IC256	8-759-927-46	s	IC SN74HC00ANS
IC257	8-759-239-58	s	IC TC74HC221AF
IC258	8-759-926-24	s	IC SN74HC164ANS
IC259	8-759-925-90	s	IC SN74HC74ANS
IC260	8-759-925-90	s	IC SN74HC74ANS
IC264	8-759-037-79	s	IC SN74HC163ANS-E05
IC265	8-759-037-79	s	IC SN74HC163ANS-E05
IC266	8-759-037-79	s	IC SN74HC163ANS-E05
IC267	8-759-925-74	s	IC TC74HC04ANS
IC268	8-759-925-81	■	IC SN74HC20ANS
IC269	8-759-927-46	s	IC SN74HC00ANS
IC270	8-759-925-78	s	IC SN74HC10ANS
IC271	8-759-239-58	s	IC TC74HC221AF
IC272	8-759-926-29	s	IC SN74HC175ANS
IC273	8-759-926-24	s	IC SN74HC164ANS
IC274	8-759-927-46	s	IC SN74HC00ANS
IC275	8-759-239-58	s	IC TC74HC221AF
IC277	8-759-908-17	s	IC TL082CPS
IC278	8-759-926-48	s	IC SN74HC244NS
IC279	8-759-008-51	s	IC MC74HC113F
IC280	8-759-300-71	■	IC HD14053BFP
IC281	8-759-926-24	■	IC SN74HC164ANS
IC282	8-759-926-24	■	IC SN74HC164ANS
IC283	8-759-925-72	s	IC SN74HC02ANS
IC284	8-759-908-17	s	IC TL082CPS
JR902	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR1002	1-216-295-91	■	RES, CHIP 0 5% 1/10W
L1	1-412-525-31	s	INDUCTOR 10uH
L2	1-412-525-31	s	INDUCTOR 10uH
L3	1-412-525-31	s	INDUCTOR 10uH
L4	1-408-789-21	s	INDUCTOR, CHIP 100uH
L101	1-408-789-21	s	INDUCTOR, CHIP 100uH
L102	1-408-785-21	s	INDUCTOR, CHIP 47uH
L103	1-408-785-21	s	INDUCTOR, CHIP 47uH
L104	1-408-789-21	s	INDUCTOR, CHIP 100uH
L105	1-408-787-00	■	INDUCTOR, CHIP 68uH
L106	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L107	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L111	1-408-797-11	s	INDUCTOR, CHIP 470uH
L112	1-408-785-21	s	INDUCTOR, CHIP 47uH
L113	1-408-780-21	s	INDUCTOR, CHIP 18uH
L114	1-408-782-11	■	INDUCTOR, CHIP 27uH
L115	1-408-780-21	s	INDUCTOR, CHIP 18uH
L116	1-408-782-11	s	INDUCTOR, CHIP 27uH
L117	1-408-785-21	s	INDUCTOR, CHIP 47uH
L118	1-408-785-21	s	INDUCTOR, CHIP 47uH
L121	1-408-785-21	s	INDUCTOR, CHIP 47uH
L122	1-408-785-21	s	INDUCTOR, CHIP 47uH
L123	1-408-785-21	s	INDUCTOR, CHIP 47uH
L124	1-408-785-21	s	INDUCTOR, CHIP 47uH
L125	1-408-785-21	s	INDUCTOR, CHIP 47uH
L126	1-408-785-21	s	INDUCTOR, CHIP 47uH
L131	1-408-787-00	s	INDUCTOR, CHIP 68uH
L132	1-408-765-21	s	INDUCTOR, CHIP 1uH
L201	1-408-789-21	■	INDUCTOR, CHIP 100uH
L202	1-408-785-21	s	INDUCTOR, CHIP 47uH
L203	1-408-785-21	s	INDUCTOR, CHIP 47uH
L204	1-408-789-21	s	INDUCTOR, CHIP 100uH

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Ref. No. or Q'ty	Part No.	SP	Description
L205	1-408-787-00	s	INDUCTOR, CHIP 68uH
L206	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L207	1-408-773-31	s	INDUCTOR, CHIP 4.7uH
L211	1-408-797-11	s	INDUCTOR, CHIP 470uH
L212	1-408-785-21	s	INDUCTOR, CHIP 47uH
L213	1-408-780-21	s	INDUCTOR, CHIP 18uH
L214	1-408-782-11	s	INDUCTOR, CHIP 27uH
L215	1-408-780-21	s	INDUCTOR, CHIP 18uH
L216	1-408-782-11	■	INDUCTOR, CHIP 27uH
L217	1-408-785-21	■	INDUCTOR, CHIP 47uH
L218	1-408-785-21	s	INDUCTOR, CHIP 47uH
L221	1-408-785-21	■	INDUCTOR, CHIP 47uH
L222	1-408-785-21	s	INDUCTOR, CHIP 47uH
L223	1-408-785-21	s	INDUCTOR, CHIP 47uH
L224	1-408-785-21	s	INDUCTOR, CHIP 47uH
L225	1-408-785-21	s	INDUCTOR, CHIP 47uH
L226	1-408-785-21	■	INDUCTOR, CHIP 47uH
L231	1-408-787-00	■	INDUCTOR, CHIP 68uH
L232	1-408-765-21	s	INDUCTOR, CHIP 1uH
LV101	1-410-286-11	s	INDUCTOR, VAR 1uH
LV201	1-410-286-11	s	INDUCTOR, VAR 1uH
PS1	⚠ 1-532-675-00	s	LINK, IC 1.5A
PS2	⚠ 1-532-605-00	s	LINK, IC 0.4A
PS3	⚠ 1-532-637-00	s	LINK, IC 1.0A
Q1	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q2	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q3	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q4	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q7	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q8	8-729-107-31	■	TRANSISTOR 2SC3545-T43
Q9	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q10	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q11	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q12	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q13	8-729-107-31	s	TRANSISTOR 2SC3545-T43
Q14	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q15	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q16	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q17	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q18	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q19	8-729-216-22	s	TRANSISTOR 2SA1162
Q20	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q21	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q22	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q23	8-729-216-22	s	TRANSISTOR 2SA1162
Q101	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q102	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q103	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q104	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q105	8-729-216-22	s	TRANSISTOR 2SA1162
Q106	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q107	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q108	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q111	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q112	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q113	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6

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Ref. No. or Q'ty	Part No.	SP	Description
Q114	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q115	8-729-216-22	s	TRANSISTOR 2SA1162
Q121	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q123	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q124	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q125	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q131	8-729-216-22	s	TRANSISTOR 2SA1162
Q132	8-729-216-22	s	TRANSISTOR 2SA1162
Q133	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q134	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q135	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q136	8-729-216-22	■	TRANSISTOR 2SA1162
Q137	8-729-216-22	s	TRANSISTOR 2SA1162
Q138	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q139	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q140	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q141	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q151	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q152	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q153	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q154	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q155	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q156	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q157	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q158	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q159	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q160	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q170	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q171	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q172	8-729-216-22	s	TRANSISTOR 2SA1162
Q173	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q174	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q175	8-729-216-22	s	TRANSISTOR 2SA1162
Q176	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q177	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q178	8-729-216-22	s	TRANSISTOR 2SA1162
Q179	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q180	8-729-216-22	s	TRANSISTOR 2SA1162
Q181	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q182	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q183	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q191	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q192	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q193	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q194	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q195	8-729-216-22	s	TRANSISTOR 2SA1162
Q196	8-729-216-22	s	TRANSISTOR 2SA1162
Q197	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q198	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q201	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q202	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q203	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q204	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q205	8-729-216-22	s	TRANSISTOR 2SA1162
Q206	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q207	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q208	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q211	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q212	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6

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Ref. No. or Q'ty	Part No.	SP	Description
Q213	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q214	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q215	8-729-216-22	s	TRANSISTOR 2SA1162
Q221	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q223	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q224	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q225	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q231	8-729-216-22	s	TRANSISTOR 2SA1162
Q232	8-729-216-22	■	TRANSISTOR 2SA1162
Q233	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q234	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q235	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q236	8-729-216-22	s	TRANSISTOR 2SA1162
Q237	8-729-216-22	■	TRANSISTOR 2SA1162
Q238	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q239	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q240	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q241	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q251	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q252	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q253	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q254	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q255	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q256	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q257	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q258	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q259	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q260	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q270	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q271	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q272	8-729-216-22	■	TRANSISTOR 2SA1162
Q273	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q274	8-729-116-64	■	TRANSISTOR 2SK508-K51
Q275	8-729-216-22	■	TRANSISTOR 2SA1162
Q276	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q277	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q278	8-729-216-22	s	TRANSISTOR 2SA1162
Q279	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q280	8-729-216-22	■	TRANSISTOR 2SA1162
Q281	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q282	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q283	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q291	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q292	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q293	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q294	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q295	8-729-216-22	s	TRANSISTOR 2SA1162
Q296	8-729-216-22	s	TRANSISTOR 2SA1162
Q297	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q298	8-729-116-64	s	TRANSISTOR 2SK508-K51
R1-10	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R11	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R12	1-216-695-11	■	METAL, CHIP 68K 0.5% 1/10W
R13	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R14	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R15	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R16	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R17	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R18	1-216-677-11	■	METAL, CHIP 12K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R19	1-218-759-11	s	METAL, CHIP 200K 0.5% 1/10W
R20	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R21	1-216-657-11	■	METAL, CHIP 1.8K 0.5% 1/10W
R22	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R23	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R24	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R25	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R26	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R27	1-208-801-11	■	METAL, CHIP 6.2K 0.5% 1/10W
R28	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R29	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R30	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R31	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R32	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R33	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R34	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R35	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R36	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R37	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R38	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R39	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R40	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R41	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R42	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R43	1-218-759-11	s	METAL, CHIP 200K 0.5% 1/10W
R44	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R45	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R46	1-216-624-11	■	METAL, CHIP 75 0.5% 1/10W
R47	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R48	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R49	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R50	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R51	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R52	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R53	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R54	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R55	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R56	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R57	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R58	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R59	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R60	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R61	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R62	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R63	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R64-72	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R73-86	1-216-699-11	■	METAL, CHIP 100K 0.5% 1/10W
R87	1-216-377-11	s	METAL 4.7 5% 2W
R88	1-216-377-11	■	METAL 4.7 5% 2W
R89	1-216-371-00	s	METAL 1.5 5% 2W
R90	1-216-371-00	s	METAL 1.5 5% 2W
R91	1-216-377-11	s	METAL 4.7 5% 2W
R92	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R93	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R94	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R95	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R96	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R97	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R98	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R99	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R100	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R101	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R102	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R103	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R104	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R105	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R106	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R107	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R108	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R109	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R110	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R111	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R112	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R113	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R114	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R115	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R116	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R117	1-216-603-11	■	METAL, CHIP 10 0.5% 1/10W
R118	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R119	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R120	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R121	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R122	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R123	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R124	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R125	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R126	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R127	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R128	1-218-263-11	s	METAL 75 5% 1/2W
R129	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R130	1-208-800-11	■	METAL, CHIP 5.6K 0.5% 1/10W
R131	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R132	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R133	1-218-772-11	s	METAL 680K 0.5% 1/10W
R134	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R135	1-216-685-11	■	METAL, CHIP 27K 0.5% 1/10W
R136	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R137	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R138	1-216-647-11	■	METAL, CHIP 680 0.5% 1/10W
R139	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R140	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R141	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R142	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R143	1-216-637-11	■	METAL, CHIP 270 0.5% 1/10W
R144	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R145	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R146	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R147	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R148	1-216-699-11	■	METAL, CHIP 100K 0.5% 1/10W
R151	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R152	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R153	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R154	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R155	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R156	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R157	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R158	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R159	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R160	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R161	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R162	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R163	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R164	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R165	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R166	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R167	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R168	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R169	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R170	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R171	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R201	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R202	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R203	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R204	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R205	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R206	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R207	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R208	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R209	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R210	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R211	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R212	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R213	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R214	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R215	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R216	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R217	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R218	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R219	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R220	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R221	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R222	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R223	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R224	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R225	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R226	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R227	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R301	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R302	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R303	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R304	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R305	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R306	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R307	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R308	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R309	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R310	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R311	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R312	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R313	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R314	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R315	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R316	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R317	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R318	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R319	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R320	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R321	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R322	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R323	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R324	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R325	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R327	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R328	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R329	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R330	1-218-776-11	s	METAL 1M 0.5% 1/10W
R331	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R332	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R333	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R334	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R335	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R336	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R337	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R338	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R339	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R340	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R341	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R342	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R343	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R344	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R345	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R346	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R347	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R348	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R349	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R350	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R351	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R352	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R353	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R354	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R355	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R356	1-218-772-11	s	METAL 680K 0.5% 1/10W
R357	1-208-812-11	s	METAL, CHIP 18K 0.5% 1/10W
R358	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R359	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R360	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R361	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R362	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R363	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R364	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R365	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R366	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R367	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R368	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R369	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R370	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R371	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R372	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R373	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R374	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R375	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R376	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
R381	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R382	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R383	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R384	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R385	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R386	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R387	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R388	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R389	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R390	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R391	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R401	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R402	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R403	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R404	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R405	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R406	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R407	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R408	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R409	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R410	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R411	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R412	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R413	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R414	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R415	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R416	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R417	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R418	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R419	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R420	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R421	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R422	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R423	1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
R424	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R425	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R427	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R428	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R429	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R430	1-218-776-11	s	METAL 1M 0.5% 1/10W
R431	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R432	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R433	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R434	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R435	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R436	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R437	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R438	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R439	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R440	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R441	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R442	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R443	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R444	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R445	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R446	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R447	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R448	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R449	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R450	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R451	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R452	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R453	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R454	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R455	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R456	1-218-772-11	s	METAL 680K 0.5% 1/10W
R457	1-208-812-11	s	METAL, CHIP 18K 0.5% 1/10W
R458	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R459	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R460	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R461	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R462	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R463	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R464	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R465	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R466	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R467	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R468	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R469	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R470	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R471	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R472	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R473	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R474	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R475	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R476	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
R481	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R482	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R483	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R484	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R485	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R486	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R487	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R488	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R489	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R490	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R491	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R501	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R502	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R503	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R504	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R505	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R506	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R507	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R508	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R509	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R510	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R511	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R512	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R513	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R519	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R520	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R521	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R522	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R523	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R524	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R525	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R531	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R532	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R534	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R535	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R536	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R537	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R538	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R539	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R540	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R541	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R542	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R543	1-218-768-11	s	METAL 470K 0.5% 1/10W
R544	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R545	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R546	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R547	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R548	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R549	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R550	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R551	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R552	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R553	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R556	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R557	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R558	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R559	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R560	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R561	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R562	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R563	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R564	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R565	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R566	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R567	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R568	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R569	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R570	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R571	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R572	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R573	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R574	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R575	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R576	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R577	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R578	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R579	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R581	1-218-776-11	s	METAL 1M 0.5% 1/10W
R582	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R583	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R584	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R585	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R586	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R587	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R588	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R589	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R590	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R591	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R592	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R593	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R594	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R595	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R601	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R602	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R603	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R604	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R605	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R606	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R607	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R608	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R609	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R610	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R611	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R612	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R613	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R619	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R620	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R621	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R622	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R623	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R624	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R625	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R631	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R632	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R634	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R635	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R636	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R637	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R638	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R639	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R640	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R641	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R642	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R643	1-218-768-11	s	METAL 470K 0.5% 1/10W
R644	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R645	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R646	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R647	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R648	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R649	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R650	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R651	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R652	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R653	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R656	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R657	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R658	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R659	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R660	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R661	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R662	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R663	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R664	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R665	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R666	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R667	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R668	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R669	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R670	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R671	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R672	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R673	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R674	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R675	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R676	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R677	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R678	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R679	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R681	1-218-776-11	■	METAL 1M 0.5% 1/10W
R682	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R683	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R684	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R685	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R686	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R687	1-216-699-11	■	METAL, CHIP 100K 0.5% 1/10W
R688	1-216-697-91	s	METAL, CHIP 82K 0.5% 1/10W
R689	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R690	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R691	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R692	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R693	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R694	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R695	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R701	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R702	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R703	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R704	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R705	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R706	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R707	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R708	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R709	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R710	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R711	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R712	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R713	1-216-652-11	s	METAL, CHIP 1.1K 0.5% 1/10W
R714	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R715	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R721	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R722	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R723	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R724	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R725	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R726	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R727	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R728	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R729	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R730	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R741	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R742	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R743	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R744	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R745	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R746	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R747	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R748	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R749	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R750	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R751	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R752	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R753	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R754	1-216-691-11	■	METAL, CHIP 47K 0.5% 1/10W
R755	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R756	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R757	1-216-679-11	■	METAL, CHIP 15K 0.5% 1/10W
R758	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R759	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R760	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R761	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R762	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R763	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R764	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R765	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R766	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R767	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R768	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R769	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R770	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R771	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R772	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R773	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R774	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R775	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R776	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R777	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R778	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R779	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R780	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R781	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R782	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R783	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R784	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R785	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R786	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R787	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R788	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R789	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R790	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R791	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R792	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R793	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R794	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R795	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R796	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R797	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R798	1-216-679-11	■	METAL, CHIP 15K 0.5% 1/10W
R799	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R801	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R802	1-208-800-11	■	METAL, CHIP 5.6K 0.5% 1/10W
R803	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R804	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R805	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R806	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R807	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R808	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R809	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R810	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R811	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R812	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R813	1-216-652-11	s	METAL, CHIP 1.1K 0.5% 1/10W
R814	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R815	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R821	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R822	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R823	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R824	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R825	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R826	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R827	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R828	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R829	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R830	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R841	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R842	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R843	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R844	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R845	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R846	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R847	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R848	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R849	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R850	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R851	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R852	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R853	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R854	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R855	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R856	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R857	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R858	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R859	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R860	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R861	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R862	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R863	1-216-646-11	■	METAL, CHIP 620 0.5% 1/10W
R864	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R865	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R866	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R867	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R868	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R869	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R870	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R871	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R872	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R873	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R874	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R875	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R876	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R877	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R878	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R879	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R880	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R881	1-216-661-11	■	METAL, CHIP 2.7K 0.5% 1/10W
R882	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R883	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R884	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R885	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R886	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R887	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R888	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R889	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R890	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R891	1-216-679-11	■	METAL, CHIP 15K 0.5% 1/10W
R892	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R893	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R894	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R895	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R896	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R897	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R898	1-216-679-11	■	METAL, CHIP 15K 0.5% 1/10W
R899	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R901	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R902	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R903	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R904	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R905	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R906	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R907	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R908	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R909	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R910	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R911	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R912	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R913	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R914	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R915	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R916	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R917	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R918	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R919	1-218-772-11	s	METAL 680K 0.5% 1/10W
R920	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R921	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R922	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R923	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R924	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R931	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R934	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R935	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R936	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R937	1-218-756-11	s	METAL, CHIP 150K 0.5% 1/10W
R938	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R941	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R942	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R943	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R944	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R946	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R947	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R948	1-216-699-11	■	METAL, CHIP 100K 0.5% 1/10W
R949	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R950	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R951	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R952	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R953	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R954	1-218-760-11	s	METAL. CHIP 220K 0.5% 1/10W
R955	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R956	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R957	1-216-635-11	■	METAL, CHIP 220 0.5% 1/10W
R958	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R959	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R960	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R961	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R962	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R963	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R964	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R965	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R966	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R988	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R989	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R991	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R992	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R1006	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1007	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1008	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R1009	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1010	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1011	1-216-627-11	■	METAL, CHIP 100 0.5% 1/10W
R1012	1-216-627-11	■	METAL, CHIP 100 0.5% 1/10W
R1013	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R1014	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1015	1-208-774-11	■	METAL, CHIP 470 0.5% 1/10W
R1016	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1017	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R1018	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1019	1-218-772-11	s	METAL 680K 0.5% 1/10W
R1020	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R1021	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R1022	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R1023	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1024	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R1031	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R1034	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R1035	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R1036	1-216-679-11	■	METAL, CHIP 15K 0.5% 1/10W
R1037	1-218-756-11	■	METAL, CHIP 150K 0.5% 1/10W
R1038	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1041	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R1042	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R1043	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R1044	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1046	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R1047	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R1048	1-216-699-11	■	METAL, CHIP 100K 0.5% 1/10W
R1049	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R1050	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R1051	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R1052	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R1053	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R1054	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R1055	1-218-764-11	s	METAL, CHIP 330K 0.5% 1/10W
R1056	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R1057	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R1058	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R1059	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R1060	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1061	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R1062	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R1063	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1064	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1065	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W

(AD-104P BOARD FOR EK)

Ref. No. or Q'ty	Part No.	SP	Description
R1066	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1088	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R1089	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R1091	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R1092	1-216-687-11	■	METAL, CHIP 33K 0.5% 1/10W
RB201	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RB202	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RB203	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RB501	1-239-305-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RB502	1-239-305-11	■	RESISTOR BLOCK, CHIP 4.7kx4
RB503	1-239-305-11	■	RESISTOR BLOCK, CHIP 4.7kx4
RV1	1-241-762-11	■	RES, ADJ METAL 2.2k
RV2	1-241-761-11	s	RES, ADJ METAL 1K
RV3	1-241-761-11	s	RES, ADJ METAL 1K
RV4	1-241-761-11	s	RES, ADJ METAL 1K
RV5	1-241-785-11	s	RES, ADJ METAL 10k
RV101	1-241-763-11	s	RES, ADJ METAL 4.7K
RV102	1-241-763-11	■	RES, ADJ METAL 4.7K
RV103	1-241-764-11	s	RES, ADJ METAL 10K
RV111	1-241-759-21	s	RES, ADJ METAL 220
RV112	1-241-761-11	s	RES, ADJ METAL 1K
RV113	1-241-763-11	s	RES, ADJ METAL 4.7K
RV114	1-241-760-21	s	RES, ADJ METAL 470
RV115	1-241-760-21	s	RES, ADJ METAL 470
RV116	1-241-761-11	s	RES, ADJ METAL 1K
RV117	1-241-759-21	s	RES, ADJ METAL 220
RV118	1-241-760-21	s	RES, ADJ METAL 470
RV119	1-241-760-21	s	RES, ADJ METAL 470
RV120	1-241-760-21	s	RES, ADJ METAL 470
RV121	1-241-762-11	s	RES, ADJ METAL 2.2k
RV122	1-241-760-21	s	RES, ADJ METAL 470
RV123	1-241-760-21	s	RES, ADJ METAL 470
RV124	1-241-762-11	s	RES, ADJ METAL 2.2k
RV125	1-241-760-21	s	RES, ADJ METAL 470
RV131	1-241-763-11	■	RES, ADJ METAL 4.7K
RV201	1-241-763-11	■	RES, ADJ METAL 4.7K
RV202	1-241-763-11	■	RES, ADJ METAL 4.7K
RV203	1-241-764-11	s	RES, ADJ METAL 10K
RV211	1-241-759-21	■	RES, ADJ METAL 220
RV212	1-241-761-11	s	RES, ADJ METAL 1K
RV213	1-241-763-11	s	RES, ADJ METAL 4.7K
RV214	1-241-760-21	s	RES, ADJ METAL 470
RV215	1-241-760-21	s	RES, ADJ METAL 470
RV216	1-241-761-11	s	RES, ADJ METAL 1K
RV217	1-241-759-21	s	RES, ADJ METAL 220
RV218	1-241-760-21	s	RES, ADJ METAL 470
RV219	1-241-760-21	s	RES, ADJ METAL 470
RV220	1-241-760-21	s	RES, ADJ METAL 470
RV221	1-241-762-11	s	RES, ADJ METAL 2.2k
RV222	1-241-760-21	s	RES, ADJ METAL 470
RV223	1-241-760-21	s	RES, ADJ METAL 470
RV224	1-241-762-11	s	RES, ADJ METAL 2.2k
RV225	1-241-760-21	s	RES, ADJ METAL 470
RV231	1-241-763-11	s	RES, ADJ METAL 4.7K
S1-4	1-571-060-11	s	SWITCH, SLIDE
X101	1-760-268-11	s	VCO, CRYSTAL 17.734475MHz
X102	1-577-259-11	■	CRYSTAL 17.734476 MHz

(AD-104P BOARD FOR EK)

Ref. No. or Q'ty	Part No.	SP	Description
X201	1-760-268-11	s	VCO, CRYSTAL 17.734475MHz
X202	1-577-259-11	s	CRYSTAL 17.734476 MHz

CN-981 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-412-A	o	MOUNTED CIRCUIT BOARD, CN-981
1pc	3-178-137-01	o	BRACKET, D-SUB
4pcs	3-673-910-21	o	SCREW, CONNECTOR
1pc	7-682-547-04	s	SCREW +B 3X6
C1	1-128-499-11	s	ELECT, CHIP 220uF 20% 16V
C2	1-128-499-11	s	ELECT, CHIP 220uF 20% 16V
CN1	1-766-788-11	■	CONNECTOR, BNC, FEMALE
CN2	1-766-788-11	s	CONNECTOR, BNC, FEMALE
CN4	1-695-807-11	s	CONNECTOR, 2-BNC, FEMALE
CN5	1-695-807-11	■	CONNECTOR, 2-BNC, FEMALE
CN6	1-573-590-12	s	CONNECTOR, CIRCULAR 4P, FEMALE
CN7	1-573-590-12	s	CONNECTOR, CIRCULAR 4P, FEMALE
CN8	1-573-590-12	s	CONNECTOR, CIRCULAR 4P, FEMALE
CN9	1-770-356-11	s	CONNECTOR, BNC, FEMALE
CN12	1-573-589-11	s	CONNECTOR, CIRCULAR 12P, MALE
CN13	1-573-589-11	s	CONNECTOR, CIRCULAR 12P, MALE
CN14	1-573-589-11	s	CONNECTOR, CIRCULAR 12P, MALE
CN15	1-766-788-11	s	CONNECTOR, BNC, FEMALE
CN16	1-766-788-11	s	CONNECTOR, BNC, FEMALE
CN17	1-766-788-11	s	CONNECTOR, BNC, FEMALE
CN18	1-770-356-11	s	CONNECTOR, BNC, FEMALE
CN19	1-695-807-11	s	CONNECTOR, 2-BNC, FEMALE
CN20	1-573-590-12	s	CONNECTOR, CIRCULAR 4P, FEMALE
CN21	1-573-590-12	s	CONNECTOR, CIRCULAR 4P, FEMALE
CN22	1-573-592-11	s	CONNECTOR, CIRCULAR 12P, FEMALE
CN23	1-573-592-11	s	CONNECTOR, CIRCULAR 12P, FEMALE
CN24	1-568-676-11	o	CONNECTOR, D-SUB 9P, FEMALE
CN25	1-568-677-11	■	CONNECTOR, D-SUB 25PM, FEMALE
CN40	1-506-702-11	o	CONNECTOR, ILG 3P, MALE
L1	1-412-525-31	s	INDUCTOR 10uH
L2	1-412-525-31	s	INDUCTOR 10uH
R1	1-215-394-00	s	METAL 75 1% 1/6W
R2	1-215-394-00	s	METAL 75 1% 1/6W
R3	1-215-394-00	s	METAL 75 1% 1/6W
S1	1-570-157-51	s	SWITCH, SLIDE
S2	1-570-157-51	s	SWITCH, SLIDE
S3	1-570-157-51	■	SWITCH, SLIDE

DA-79 BOARD FOR UC

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-408-A	o	MOUNTED CIRCUIT BOARD, DA-79
6pcs	2-280-622-21	o	SUPPORT (M3X10), HEXAGON
2pcs	3-166-184-01	o	LEVER, PC BOARD
2pcs	3-166-185-01	s	NUT, PLATE
1pc	4-886-821-11	s	SCREW, S TIGHT, +PTTWH 3X6
4pcs	7-621-773-87	s	SCREW +B 2.6X10
2pcs	7-626-320-11	s	PIN, SPRING 3X8
6pcs	7-682-947-01	s	SCREW +PSW 3X6
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
C101	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C102	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C103	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C104	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C105	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C106	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C107	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C108	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C109	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C110	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C111	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C112	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C113	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C114	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C115	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C116	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C117	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C118	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C119	1-128-257-21	s	ELECT 33uF 20% 10V
C120	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C121	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C122	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C123	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C124	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C125	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C126	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C127	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C128	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C129	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C130	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C131	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C132	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C133	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C154	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C155	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C156	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C157	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C158	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C159	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C160	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C161	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C162	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C163	1-128-357-11	s	ELECT 10uF 20% 16V
C164	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C165	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C166	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C167	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C168	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C169	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C170	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

(DA-79 BOARD FOR UC)

Ref. No. or Q'ty	Part No.	SP	Description
C171	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C172	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C173	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C174	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C175	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C176	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C177	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C178	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C179	1-135-137-11	s	TANTALUM, CHIP 6.8uF 20% 25V
C180	1-163-099-00	s	CERAMIC, CHIP 18PF 5% 50V
C181	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C182	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C183	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C184	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C185	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C186	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C187	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C188	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C189	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C190	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C191	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C192	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C193	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C194	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C195	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C196	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C202	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C203	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C204	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C207	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C208	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C209	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C211	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C212	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C213	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C214	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C215	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C216	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C217	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C218	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C219	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C220	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C221	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C223	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C228	1-135-137-11	s	TANTALUM, CHIP 6.8uF 20% 25V
C229	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C230	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C301	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C302	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C303	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C304	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C305	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C306	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C307	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C308	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C311	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V

(DA-79 BOARD FOR UC)

Ref. No. or Q'ty	Part No.	SP	Description
C312	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C313	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C314	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C316	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C317	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C318	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C319	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C320	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C321	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C322	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C323	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C324	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C325	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C326	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C327	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C328	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C329	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C330	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C331	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C332	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C335	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C336	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C337	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C338	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C339	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C340	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C341	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C342	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C345	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C346	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C347	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C356	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C357	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C358	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C401	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C402	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C403	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C404	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C405	1-128-257-21	s	ELECT 33uF 20% 10V
C406	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C407	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C409	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C410	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C411	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C412	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C413	1-128-257-21	s	ELECT 33uF 20% 10V
C414	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C416	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C417	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C418	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C419	1-128-257-21	s	ELECT 33uF 20% 10V
C421	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C422	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C423	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C424	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C425	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C426	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C427	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C428	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C429	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C430	1-128-257-21	s	ELECT 33uF 20% 10V
C431	1-128-257-21	s	ELECT 33uF 20% 10V
C433	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C434	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C435	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C436	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C437	1-163-224-11	s	CERAMIC, CHIP 7PF 50V
C438	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C439	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C440	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C441	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C442	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C443	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C444	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C445	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C446	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C447	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C448	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C449	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C450	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C451	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C452	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C453	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C454	1-128-257-21	s	ELECT 33uF 20% 10V
C457	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C458	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C460	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C461	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C462	1-164-346-11	s	CERAMIC 1uF 16V
C463	1-135-165-11	s	TANTALUM 33uF 20% 16V
C464	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C465	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C466	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C467	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C468	1-128-257-21	s	ELECT 33uF 20% 10V
C471	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C472	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C473	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C474	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C475	1-164-346-11	s	CERAMIC 1uF 16V
C476	1-135-165-11	s	TANTALUM 33uF 20% 16V
C477	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C478	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C479	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C480	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C481	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C482	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C483	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C484	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C485	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C486	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C488	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C489	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C490	1-128-257-21	s	ELECT 33uF 20% 10V
C491	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C492	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C493	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C494	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C495	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C496	1-163-237-11	s	CERAMIC, CHIP 27PF 5% 50V
C497	1-163-237-11	s	CERAMIC, CHIP 27PF 5% 50V
C498	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C499	1-163-237-11	s	CERAMIC, CHIP 27PF 5% 50V
C500	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C501	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C502	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C503	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C504	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C505	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C506	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C507	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C508	1-128-257-21	s	ELECT 33uF 20% 10V
C509	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C510	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C511	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C512	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C513	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C514	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C515	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C516	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C517	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C518	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C519	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C520	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C521	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C522	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C523	1-163-224-11	s	CERAMIC, CHIP 7PF 50V
C524	1-163-097-00	■	CERAMIC, CHIP 15PF 5% 50V
C525	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C526	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C527	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C528	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C529	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C530	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C535	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C536	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C701	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C702	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C703	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C704	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C705	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C706	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C707	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C708	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C709	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C710	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C711	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C712	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C713	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C714	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C715	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C716	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C717	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C718	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C719	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C720	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C721	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C722	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C723	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C724	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C725	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C726	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C727	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C728	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C729	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C730	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C731	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C732	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C733	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C734	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C735	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C736	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C737	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C738	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C739	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C740	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C741	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C742	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C743	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C744	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C745	1-163-097-00	■	CERAMIC, CHIP 15PF 5% 50V
C746	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C747	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C748	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C749	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C750	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C751	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C752	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C753	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C754	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C756	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C757	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C758	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C759	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C764	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C901	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C902	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C903	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
CN13	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN14	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN15	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN40	1-580-097-11	o	CONNECTOR, PICL-S 50P, MALE
CN50	1-580-097-11	o	CONNECTOR, PICL-S 50P, MALE
D102	8-719-800-76	s	DIODE 1SS226
D103	8-719-800-76	s	DIODE 1SS226
D104	8-719-800-76	s	DIODE 1SS226
D105	8-719-987-41	s	LED CL-150Y-CD, ORG
D106	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D301	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D701	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
DL701	1-415-502-11	s	DELAY LINE 100nS
DL702	1-415-502-11	s	DELAY LINE 100nS
E301	1-535-877-22	o	TERMINAL, TP

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Ref. No. or Q'ty	Part No.	SP	Description
E302	1-535-877-22	o	TERMINAL, TP
E303	1-535-877-22	o	TERMINAL, TP
E304	1-535-877-22	o	TERMINAL, TP
E305	1-535-877-22	o	TERMINAL, TP
FB101	1-543-256-11	s	BEAD, FERRITE
FB102	1-543-256-11	s	BEAD, FERRITE
FL401	1-239-085-11	s	FILTER, LOW-PASS
FL402	1-239-085-11	s	FILTER, LOW-PASS
FL403	1-235-758-11	s	FILTER, LOW-PASS
FL404	1-235-758-11	s	FILTER, LOW-PASS
FL405	1-235-161-00	s	FILTER, BANDPASS 3.58MHz
FL406	1-235-786-11	s	FILTER, LOW-PASS
FL407	1-235-584-11	s	FILTER, LOW-PASS
IC101	8-759-701-59	s	IC NJM7809FA
IC102	8-759-701-75	s	IC NJM7805FA
IC103	8-759-987-27	s	IC LM1881M
IC105	8-752-335-47	s	IC CXD1216M
IC106	8-759-300-71	s	IC HD14053BFP
IC107	8-759-100-94	s	IC UPC358G2
IC108	8-752-332-67	s	IC CXD1217M
IC109	8-759-300-71	s	IC HD14053BFP
IC110	8-759-902-88	s	IC SN74LS123NS
IC111	8-759-100-94	s	IC UPC358G2
IC112	8-759-925-72	s	IC SN74HC02ANS
IC113	8-759-925-90	■	IC SN74HC74ANS
IC114	8-759-925-74	s	IC TC74HC04ANS
IC115	8-759-037-79	s	IC SN74HC163ANS-E05
IC117	8-759-907-81	s	IC SN74LS221NS
IC118	8-759-907-81	s	IC SN74LS221NS
IC119	8-759-209-20	s	IC TC4584BF
IC120	8-759-209-20	s	IC TC4584BF
IC121	8-759-926-24	s	IC SN74HC164ANS
IC122	8-759-926-24	s	IC SN74HC164ANS
IC123	8-759-037-79	s	IC SN74HC163ANS-E05
IC124	8-759-926-48	s	IC SN74HC244NS
IC125	8-759-926-24	s	IC SN74HC164ANS
IC126	8-759-926-24	s	IC SN74HC164ANS
IC301	8-759-925-99	s	IC SN74HC109ANS-E05
IC302	8-759-711-58	s	IC NJM78L05UA
IC303	8-759-292-80	s	IC CXD8878Q
IC304	8-759-292-80	s	IC CXD8878Q
IC305	8-759-926-24	s	IC SN74HC164ANS
IC306	8-759-037-79	s	IC SN74HC163ANS-E05
IC307	8-759-925-90	s	IC SN74HC74ANS
IC308	8-759-515-09	s	IC SN74ALS374ANS
IC309	8-759-515-09	s	IC SN74ALS374ANS
IC310	8-759-515-09	s	IC SN74ALS374ANS
IC311	8-759-515-09	s	IC SN74ALS374ANS
IC312	8-759-147-05	s	IC UPD42101G-3
IC313	8-752-032-93	s	IC CXA1260Q-Z
IC314	8-752-032-96	s	IC CXA1106M
IC315	8-759-099-38	s	IC SN74HCT374ANS-E05
IC316	8-759-926-67	s	IC SN74HC374ANS
IC317	8-759-926-67	s	IC SN74HC374ANS
IC318	8-759-926-67	s	IC SN74HC374ANS
IC319	8-759-926-67	s	IC SN74HC374ANS
IC320	8-759-926-67	s	IC SN74HC374ANS
IC401	8-759-271-04	s	IC LT1252CS8

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Ref. No. or Q'ty	Part No.	SP	Description
IC402	8-759-271-04	s	IC LT1252CS8
IC403	8-759-271-04	s	IC LT1252CS8
IC404	8-759-702-07	s	IC NJM13700M
IC405	8-759-271-04	s	IC LT1252CS8
IC406	8-759-702-07	s	IC NJM13700M
IC407	8-752-052-73	s	IC CXA1451M
IC408	8-752-052-73	s	IC CXA1451M
IC409	8-752-052-73	s	IC CXA1451M
IC410	8-759-271-04	s	IC LT1252CS8
IC411	8-759-271-04	s	IC LT1252CS8
IC412	8-759-906-59	s	IC CX22017
IC413	8-759-271-04	s	IC LT1252CS8
IC414	8-759-702-07	s	IC NJM13700M
IC415	8-752-052-73	s	IC CXA1451M
IC701	8-759-701-59	s	IC NJM7809FA
IC702	8-759-701-87	s	IC NJM7909FA
IC703	8-759-701-75	s	IC NJM7805FA
IC704	8-759-701-84	s	IC NJM7905FA
IC705	8-759-702-07	s	IC NJM13700M
IC706	8-752-052-73	s	IC CXA1451M
IC707	8-752-052-73	s	IC CXA1451M
IC708	8-759-271-04	s	IC LT1252CS8
IC709	8-759-702-07	s	IC NJM13700M
IC710	8-752-052-73	s	IC CXA1451M
IC711	8-759-271-04	s	IC LT1252CS8
IC712	8-752-052-73	s	IC CXA1451M
IC901	8-759-926-48	■	IC SN74HC244NS
IC902	8-759-926-48	s	IC SN74HC244NS
IC903	8-759-926-48	■	IC SN74HC244NS
JR101	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR105	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR109	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR113	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR115	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR117	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR119	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR121	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR123	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR125	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR701	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR703	1-216-295-91	s	RES, CHIP 0 5% 1/10W
L101	1-412-525-31	s	INDUCTOR 10uH
L102	1-412-525-31	s	INDUCTOR 10uH
L103	1-408-777-00	s	INDUCTOR, CHIP 10uH
L104	1-408-777-00	s	INDUCTOR, CHIP 10uH
L105	1-408-789-21	s	INDUCTOR, CHIP 100uH
L106	1-408-793-21	s	INDUCTOR, CHIP 220uH
L108	1-408-777-00	■	INDUCTOR, CHIP 10uH
L109	1-408-777-00	s	INDUCTOR, CHIP 10uH
L110	1-408-777-00	s	INDUCTOR, CHIP 10uH
L111	1-408-777-00	s	INDUCTOR, CHIP 10uH
L112	1-408-777-00	s	INDUCTOR, CHIP 10uH
L113	1-408-785-21	s	INDUCTOR, CHIP 47uH
L114	1-408-777-00	s	INDUCTOR, CHIP 10uH
L115	1-408-777-00	s	INDUCTOR, CHIP 10uH
L116	1-408-777-00	s	INDUCTOR, CHIP 10uH
L301	1-412-525-31	s	INDUCTOR 10uH
L302	1-408-777-00	s	INDUCTOR, CHIP 10uH

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Ref. No. or Q'ty	Part No.	SP	Description
L304	1-408-777-00	s	INDUCTOR, CHIP 10uH
L305	1-408-777-00	s	INDUCTOR, CHIP 10uH
L307	1-408-777-00	■	INDUCTOR, CHIP 10uH
L401	1-408-777-00	s	INDUCTOR, CHIP 10uH
L402	1-408-777-00	s	INDUCTOR, CHIP 10uH
L403	1-408-777-00	s	INDUCTOR, CHIP 10uH
L404	1-408-777-00	s	INDUCTOR, CHIP 10uH
L405	1-408-777-00	s	INDUCTOR, CHIP 10uH
L406	1-408-777-00	s	INDUCTOR, CHIP 10uH
L407	1-408-777-00	s	INDUCTOR, CHIP 10uH
L408	1-408-777-00	■	INDUCTOR, CHIP 10uH
L409	1-408-793-21	s	INDUCTOR, CHIP 220uH
L410	1-408-793-21	s	INDUCTOR, CHIP 220uH
L411	1-408-786-21	s	INDUCTOR, CHIP 56uH
L412	1-408-777-00	■	INDUCTOR, CHIP 10uH
L701	1-408-777-00	s	INDUCTOR, CHIP 10uH
L702	1-408-777-00	s	INDUCTOR, CHIP 10uH
PS101 ⚠	1-532-675-00	s	LINK, IC 1.5A
PS102 ⚠	1-532-685-00	s	LINK, IC 0.6A
PS301 ⚠	1-532-637-00	s	LINK, IC 1.0A
Q101	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q102	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q103	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q104	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q105	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q106	8-729-216-22	s	TRANSISTOR 2SA1162
Q107	8-729-216-22	■	TRANSISTOR 2SA1162
Q108	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q121	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q122	8-729-175-73	s	TRANSISTOR 2SC2757
Q123	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q124	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q125	8-729-216-22	s	TRANSISTOR 2SA1162
Q126	8-729-109-44	s	TRANSISTOR 2SK94
Q127	8-729-216-22	s	TRANSISTOR 2SA1162
Q401	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q402	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q403	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q404	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q405	8-729-216-22	s	TRANSISTOR 2SA1162
Q406	8-729-216-22	s	TRANSISTOR 2SA1162
Q407	8-729-216-22	s	TRANSISTOR 2SA1162
Q408	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q409	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q410	8-729-112-65	■	TRANSISTOR 2SA1462-Y33
Q411	8-729-216-22	s	TRANSISTOR 2SA1162
Q412	8-729-216-22	s	TRANSISTOR 2SA1162
Q413	8-729-216-22	s	TRANSISTOR 2SA1162
Q414	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q415	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q416	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q417	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q418	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q419	8-729-216-22	s	TRANSISTOR 2SA1162
Q420	8-729-175-73	s	TRANSISTOR 2SC2757
Q421	8-729-175-73	s	TRANSISTOR 2SC2757
Q422	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q423	8-729-112-65	s	TRANSISTOR 2SA1462-Y33

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Ref. No. or Q'ty	Part No.	SP	Description
Q424	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q425	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q426	8-729-175-73	s	TRANSISTOR 2SC2757
Q427	8-729-175-73	s	TRANSISTOR 2SC2757
Q428	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q429	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q430	8-729-216-22	s	TRANSISTOR 2SA1162
Q431	8-729-216-22	s	TRANSISTOR 2SA1162
Q432	8-729-175-73	s	TRANSISTOR 2SC2757
Q433	8-729-216-22	s	TRANSISTOR 2SA1162
Q434	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q435	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q436	8-729-175-73	s	TRANSISTOR 2SC2757
Q437	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q438	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q439	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q440	8-729-216-22	s	TRANSISTOR 2SA1162
Q441	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q442	8-729-175-73	s	TRANSISTOR 2SC2757
Q443	8-729-216-22	s	TRANSISTOR 2SA1162
Q444	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q445	8-729-175-73	s	TRANSISTOR 2SC2757
Q446	8-729-216-22	s	TRANSISTOR 2SA1162
Q447	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q448	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q449	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q450	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q701	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q702	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q703	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q704	8-729-116-64	■	TRANSISTOR 2SK508-K51
Q705	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q706	8-729-175-73	s	TRANSISTOR 2SC2757
Q707	8-729-116-64	■	TRANSISTOR 2SK508-K51
Q708	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q709	8-729-175-73	s	TRANSISTOR 2SC2757
Q710	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q711	8-729-112-65	■	TRANSISTOR 2SA1462-Y33
R101	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R102	1-216-699-11	■	METAL, CHIP 100K 0.5% 1/10W
R103	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R104	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R105	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R106	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R107	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R108	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R109	1-218-772-11	s	METAL 680K 0.5% 1/10W
R110	1-208-812-11	s	METAL, CHIP 18K 0.5% 1/10W
R111	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R112	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R113	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R114	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R115	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R116	1-218-758-11	s	METAL, CHIP 180K 0.5% 1/10W
R117	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R118	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R119	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R120	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R121	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R122	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R123	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R124	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R125	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R126	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R154	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R155	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R156	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R157	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R158	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R159	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R160	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R161	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R163	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R164	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R165	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R166	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R167	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R168	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R169	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R170	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R171	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R172	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R173	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R174	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R175	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R176	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R177	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R178	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R179	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R180	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R181	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R182	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R183	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R184	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R185	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R186	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R187	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R188	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R189	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R190	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R191	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R192	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R193	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R194	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R195	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R196	1-216-642-11	s	METAL, CHIP 430 0.5% 1/10W
R197	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R198	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R199	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R200	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R201	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R202	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R203	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R204	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R205	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R206	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R207	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R208	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R209	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R210	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R211	1-208-814-11	■	METAL, CHIP 22K 0.5% 1/10W
R212	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R213	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R214	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R215	1-216-679-11	■	METAL, CHIP 15K 0.5% 1/10W
R221	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R222	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R223	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R224	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R225	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R226	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R227	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R228	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R301	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R302	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R303	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R304	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R305	1-216-657-11	■	METAL, CHIP 1.8K 0.5% 1/10W
R306	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R307	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R308	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R312	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R313	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R401	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R402	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R403	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R404	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R405	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R406	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R407	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R408	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R409	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R411	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R412	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R413	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R414	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R415	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R416	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R417	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R418	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R419	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R420	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R421	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R422	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R423	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R425	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R426	1-216-647-11	■	METAL, CHIP 680 0.5% 1/10W
R427	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R428	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R429	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R430	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R431	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R432	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R433	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R434	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R436	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R437	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R438	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R439	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R440	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R441	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R442	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R443	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R444	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R445	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R446	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R447	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R448	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R449	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R450	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R451	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R452	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R453	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R454	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R455	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R456	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R458	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R459	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R460	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R461	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R462	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R463	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R464	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R465	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R466	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R467	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R468	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R469	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R470	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R471	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R472	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R473	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R474	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R475	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R476	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R477	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R478	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R479	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R480	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R481	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R482	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R483	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R484	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R485	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R486	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R487	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R488	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R489	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R491	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R492	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R494	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R495	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R496	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R497	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R498	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R499	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R500	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R501	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R503	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R504	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R505	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R506	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R507	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R508	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R509	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R510	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R511	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R512	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R513	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R514	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R515	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R516	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R517	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R519	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R520	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R522	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R523	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R524	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R525	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R526	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R527	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R528	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R529	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R530	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R531	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R532	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R533	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R534	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R535	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R536	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R537	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R538	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R539	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R540	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R541	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R542	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R543	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R544	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R545	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R546	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R547	1-216-295-91	s	RES, CHIP 0 5% 1/10W
R548	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R549	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R550	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R551	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R552	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R553	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R554	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R555	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R556	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R557	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R558	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R559	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R560	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R561	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R562	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R563	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R564	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R565	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R566	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R567	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R568	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R569	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R570	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R571	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R572	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R573	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R574	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R575	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R576	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R577	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R578	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R579	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R580	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R581	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R582	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R583	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R584	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R585	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R586	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R587	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R588	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R589	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R590	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R591	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R592	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R593	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R594	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R595	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R596	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R597	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R598	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R599	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R600	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R601	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R602	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R603	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R604	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R605	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R606	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R607	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R608	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R609	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R610	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R611	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R612	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R613	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R614	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R616	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R617	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R618	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R619	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R620	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R621	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R622	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R623	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R624	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R625	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R626	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R701	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R702	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R703	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R704	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R705	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R706	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R707	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R708	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R709	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R710	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R711	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R712	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R713	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R714	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R715	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R716	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R717	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R718	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R719	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R720	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R721	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R722	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R723	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R724	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R725	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R726	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R727	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R728	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R729	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R730	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R731	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R732	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R733	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R734	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R735	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R736	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R737	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R738	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R739	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R740	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R741	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R742	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R743	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R744	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R745	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R746	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R747	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R748	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R749	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R750	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R751	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R752	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R753	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R754	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R755	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R756	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R757	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R758	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R759	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R760	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R761	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R762	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R763	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R764	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R765	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R766	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R767	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R768	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R769	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R770	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R771	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R772	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R773	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R774	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R775	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R776	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R777	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R778	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R779	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
RB101	1-236-907-11	s	RESISTOR BLOCK, CHIP 100kx4
RB301	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB302	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB303	1-239-309-11	■	RESISTOR BLOCK, CHIP 100kx8
RB304	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB305	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB306	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB307	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB308	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB309	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB310	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB311	1-239-309-11	■	RESISTOR BLOCK, CHIP 100kx8
RB312	1-236-907-11	s	RESISTOR BLOCK, CHIP 100kx4
RB313	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB314	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB315	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB316	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB317	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB318	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB319	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB320	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RV101	1-241-763-11	s	RES, ADJ METAL 4.7K
RV102	1-241-785-11	s	RES, ADJ METAL 10k
RV103	1-241-784-11	s	RES, ADJ METAL 4.7k
RV106	1-241-764-11	s	RES, ADJ METAL 10K
RV401	1-241-761-11	s	RES, ADJ METAL 1K
RV402	1-241-783-11	s	RES, ADJ METAL 2.2k
RV403	1-241-783-11	s	RES, ADJ METAL 2.2k
RV404	1-241-783-11	s	RES, ADJ METAL 2.2k
RV406	1-241-763-11	s	RES, ADJ METAL 4.7K
RV407	1-241-762-11	s	RES, ADJ METAL 2.2k

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Ref. No. or Q'ty	Part No.	SP	Description
RV408	1-241-763-11	s	RES, ADJ METAL 4.7K
RV409	1-241-760-21	s	RES, ADJ METAL 470
RV410	1-241-760-21	s	RES, ADJ METAL 470
RV411	1-241-760-21	s	RES, ADJ METAL 470
RV412	1-241-783-11	s	RES, ADJ METAL 2.2k
RV701	1-241-783-11	s	RES, ADJ METAL 2.2k
RV702	1-241-783-11	■	RES, ADJ METAL 2.2k
RV703	1-241-760-21	s	RES, ADJ METAL 470
RV704	1-241-783-11	s	RES, ADJ METAL 2.2k
RV705	1-241-760-21	s	RES, ADJ METAL 470
RV706	1-241-783-11	s	RES, ADJ METAL 2.2k
S101	1-554-399-00	s	SWITCH, TOGGLE
S102	1-554-027-00	s	SWITCH, DIGITAL
S301	1-571-060-11	■	SWITCH, SLIDE
S302	1-554-027-00	s	SWITCH, DIGITAL
S303	1-553-252-00	s	SWITCH, DIGITAL
S401	1-570-373-12	s	SWITCH, SLIDE
TH101	1-800-071-11	s	THERMISTOR, S-300
TP301	1-535-877-22	o	TERMINAL, TP
TP302	1-535-877-22	o	TERMINAL, TP
TP303	1-535-877-22	o	TERMINAL, TP
TP304	1-535-877-22	o	TERMINAL, TP
TP305	1-535-877-22	o	TERMINAL, TP
TP306	1-535-877-22	o	TERMINAL, TP
VCO101	1-760-267-11	s	VCO, CRYSTAL 14.318180MHz
VCO102	1-760-267-11	s	VCO, CRYSTAL 14.318180MHz

DA-79P BOARD FOR EK

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-716-A	o	MOUNTED CIRCUIT BOARD, DA-79P
6pcs	2-280-622-21	o	SUPPORT (M3X10), HEXAGON
2pcs	3-166-184-01	o	LEVER, PC BOARD
2pcs	3-166-185-01	s	NUT, PLATE
1pc	4-886-821-11	s	SCREW, S TIGHT, +PTTWH 3X6
4pcs	7-621-773-87	s	SCREW +B 2.6X10
2pcs	7-626-320-11	s	PIN, SPRING 3X8
6pcs	7-682-947-01	s	SCREW +PSW 3X6
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
C101	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C102	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C103	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C104	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C105	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C106	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C107	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C108	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C109	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C110	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C111	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C112	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C113	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C114	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C115	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C116	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C117	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C118	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C119	1-128-257-21	s	ELECT 33uF 20% 10V
C120	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C121	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C122	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C123	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C124	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C125	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C126	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C127	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C128	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C129	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C130	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C131	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C132	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C133	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C154	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C155	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C156	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C157	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C158	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C159	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C160	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C161	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C162	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C163	1-128-357-11	s	ELECT 10uF 20% 16V
C164	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C165	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C166	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C167	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C168	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C169	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C170	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C171	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C172	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C173	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C174	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C175	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C176	1-163-235-11	■	CERAMIC, CHIP 22PF 5% 50V
C177	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C178	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C179	1-135-137-11	s	TANTALUM, CHIP 6.8uF 20% 25V
C180	1-163-099-00	s	CERAMIC, CHIP 18PF 5% 50V
C181	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C182	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C183	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C184	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C185	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C186	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C187	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C188	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C189	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C190	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C191	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C192	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C193	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C194	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C195	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C196	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C202	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C203	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C204	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C205	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C206	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C207	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C208	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C209	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C211	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C212	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C213	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C214	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C215	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C216	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C217	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C218	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C219	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C220	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C221	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C223	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C228	1-135-137-11	s	TANTALUM, CHIP 6.8uF 20% 25V
C229	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C230	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C301	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C302	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C303	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C304	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C305	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C306	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C307	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C308	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C311	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C312	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C313	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C314	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C316	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C317	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C318	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C319	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C320	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C321	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C322	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C323	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C324	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C325	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C326	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C327	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C328	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C329	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C330	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C331	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C332	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C335	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C336	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C337	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C338	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C339	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C340	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C341	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C342	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C345	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C346	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C347	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C356	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C357	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C358	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C401	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C402	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C403	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C404	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C405	1-128-257-21	s	ELECT 33uF 20% 10V
C406	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C407	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C409	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C410	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C411	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C412	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C413	1-128-257-21	s	ELECT 33uF 20% 10V
C414	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C416	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C417	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C418	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C419	1-128-257-21	s	ELECT 33uF 20% 10V
C421	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C422	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C423	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C424	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C425	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C426	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C427	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C428	1-163-097-00	■	CERAMIC, CHIP 15PF 5% 50V
C429	1-163-222-11	s	CERAMIC, CHIP 5PF 50V
C430	1-128-257-21	s	ELECT 33uF 20% 10V
C431	1-128-257-21	s	ELECT 33uF 20% 10V
C433	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C434	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C435	1-164-232-11	■	CERAMIC, CHIP 0.01uF 10% 100V
C436	1-163-097-00	■	CERAMIC, CHIP 15PF 5% 50V
C437	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C438	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C439	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C440	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C441	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C442	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C443	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C444	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C445	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C446	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C447	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C448	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C449	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C450	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C451	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C452	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C453	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C454	1-128-257-21	s	ELECT 33uF 20% 10V
C457	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C458	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C459	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C460	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C461	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C462	1-164-346-11	s	CERAMIC 1uF 16V
C463	1-135-165-11	■	TANTALUM 33uF 20% 16V
C464	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C465	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C466	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C467	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C468	1-128-257-21	s	ELECT 33uF 20% 10V
C471	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C472	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C473	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C474	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C475	1-164-346-11	s	CERAMIC 1uF 16V
C476	1-135-165-11	s	TANTALUM 33uF 20% 16V
C477	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C478	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C479	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C480	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C481	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C482	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C483	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C484	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C485	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C486	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C488	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C489	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C490	1-128-257-21	s	ELECT 33uF 20% 10V
C491	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C492	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C493	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C494	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C495	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C496	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C497	1-163-235-11	■	CERAMIC, CHIP 22PF 5% 50V
C498	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C499	1-163-237-11	s	CERAMIC, CHIP 27PF 5% 50V
C500	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C501	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C502	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C503	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C504	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C505	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C506	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C507	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C508	1-128-257-21	s	ELECT 33uF 20% 10V
C509	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C510	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C511	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C512	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C513	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C514	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C515	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C516	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C517	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C518	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C519	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C520	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C521	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C522	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C523	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C524	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C525	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C526	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C527	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C528	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C529	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C530	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C535	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C536	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C701	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V
C702	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C703	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C704	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C705	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C706	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C707	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C708	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C709	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C710	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C711	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C712	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C713	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C714	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C715	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C716	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C717	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C718	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C719	1-126-396-11	■	ELECT, CHIP 47uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C720	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C721	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C722	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C723	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C724	1-163-097-00	■	CERAMIC, CHIP 15PF 5% 50V
C725	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C726	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C727	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C728	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C729	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C730	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C731	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C732	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C733	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C734	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C735	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C736	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C737	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C738	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C739	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C740	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C741	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C742	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C743	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C744	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C745	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C746	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C747	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C748	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C749	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C750	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C751	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C752	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C753	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C754	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C756	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C757	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C758	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C759	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C764	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C901	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C902	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C903	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
CN13	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN14	1-506-748-11	■	CONNECTOR, DIN 96P, MALE
CN15	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN40	1-580-097-11	o	CONNECTOR, PICL-S 50P, MALE
CN50	1-580-097-11	o	CONNECTOR, PICL-S 50P, MALE
D102	8-719-800-76	s	DIODE 1SS226
D103	8-719-800-76	s	DIODE 1SS226
D104	8-719-800-76	s	DIODE 1SS226
D105	8-719-987-41	s	LED CL-150Y-CD, ORG
D106	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D301	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
D701	8-719-987-43	s	LED CL-150PG-CD, YEL-GRN
DL701	1-415-503-11	s	DELAY LINE
DL702	1-415-503-11	s	DELAY LINE

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Ref. No. or Q'ty	Part No.	SP	Description
E301	1-535-877-22	o	TERMINAL, TP
E302	1-535-877-22	o	TERMINAL, TP
E303	1-535-877-22	■	TERMINAL, TP
E304	1-535-877-22	o	TERMINAL, TP
E305	1-535-877-22	o	TERMINAL, TP
FB101	1-543-256-11	s	BEAD, FERRITE
FB102	1-543-256-11	s	BEAD, FERRITE
FL401	1-239-085-11	s	FILTER, LOW-PASS
FL402	1-239-085-11	s	FILTER, LOW-PASS
FL403	1-235-758-11	■	FILTER, LOW-PASS
FL404	1-235-758-11	s	FILTER, LOW-PASS
FL405	1-235-181-00	s	FILTER, BANDPASS 4.43MHz
FL406	1-235-584-11	s	FILTER, LOW-PASS
FL407	1-235-584-11	s	FILTER, LOW-PASS
IC101	8-759-701-59	s	IC NJM7809FA
IC102	8-759-701-75	s	IC NJM7805FA
IC103	8-759-987-27	s	IC LM1881M
IC105	8-752-335-47	s	IC CXD1216M
IC106	8-759-300-71	s	IC HD14053BFP
IC107	8-759-100-94	■	IC UPC358G2
IC108	8-752-332-67	■	IC CXD1217M
IC109	8-759-300-71	s	IC HD14053BFP
IC110	8-759-902-88	s	IC SN74LS123NS
IC111	8-759-100-94	s	IC UPC358G2
IC112	8-759-925-72	s	IC SN74HC02ANS
IC113	8-759-925-90	s	IC SN74HC74ANS
IC114	8-759-925-74	s	IC TC74HC04ANS
IC115	8-759-037-79	■	IC SN74HC163ANS-E05
IC117	8-759-907-81	s	IC SN74LS221NS
IC118	8-759-907-81	s	IC SN74LS221NS
IC119	8-759-209-20	s	IC TC4584BF
IC120	8-759-209-20	s	IC TC4584BF
IC121	8-759-926-24	■	IC SN74HC164ANS
IC122	8-759-926-24	s	IC SN74HC164ANS
IC123	8-759-037-79	■	IC SN74HC163ANS-E05
IC124	8-759-926-48	s	IC SN74HC244NS
IC125	8-759-926-24	s	IC SN74HC164ANS
IC126	8-759-926-24	s	IC SN74HC164ANS
IC301	8-759-925-99	s	IC SN74HC109ANS-E05
IC302	8-759-711-58	s	IC NJM78L05UA
IC303	8-759-292-80	s	IC CXD8878Q
IC304	8-759-292-80	s	IC CXD8878Q
IC305	8-759-926-24	■	IC SN74HC164ANS
IC306	8-759-037-79	s	IC SN74HC163ANS-E05
IC307	8-759-925-90	s	IC SN74HC74ANS
IC308	8-759-515-09	s	IC SN74ALS374ANS
IC309	8-759-515-09	s	IC SN74ALS374ANS
IC310	8-759-515-09	s	IC SN74ALS374ANS
IC311	8-759-515-09	s	IC SN74ALS374ANS
IC312	8-759-147-05	s	IC UPD42101G-3
IC313	8-752-032-93	s	IC CXA1260Q-Z
IC314	8-752-032-96	s	IC CXA1106M
IC315	8-759-099-38	s	IC SN74HCT374ANS-E05
IC316	8-759-926-67	s	IC SN74HC374ANS
IC317	8-759-926-67	s	IC SN74HC374ANS
IC318	8-759-926-67	■	IC SN74HC374ANS
IC319	8-759-926-67	s	IC SN74HC374ANS
IC320	8-759-926-67	s	IC SN74HC374ANS

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Ref. No. or Q'ty	Part No.	SP	Description
IC401	8-759-271-04	s	IC LT1252CS8
IC402	8-759-271-04	s	IC LT1252CS8
IC403	8-759-271-04	■	IC LT1252CS8
IC404	8-759-702-07	s	IC NJM13700M
IC405	8-759-271-04	s	IC LT1252CS8
IC406	8-759-702-07	■	IC NJM13700M
IC407	8-752-052-73	■	IC CXA1451M
IC408	8-752-052-73	s	IC CXA1451M
IC409	8-752-052-73	s	IC CXA1451M
IC410	8-759-271-04	■	IC LT1252CS8
IC411	8-759-271-04	s	IC LT1252CS8
IC412	8-759-906-59	■	IC CX22017
IC413	8-759-271-04	s	IC LT1252CS8
IC414	8-759-702-07	■	IC NJM13700M
IC415	8-752-052-73	s	IC CXA1451M
IC701	8-759-701-59	s	IC NJM7809FA
IC702	8-759-701-87	s	IC NJM7909FA
IC703	8-759-701-75	s	IC NJM7805FA
IC704	8-759-701-84	s	IC NJM7905FA
IC705	8-759-702-07	s	IC NJM13700M
IC706	8-752-052-73	s	IC CXA1451M
IC707	8-752-052-73	s	IC CXA1451M
IC708	8-759-271-04	s	IC LT1252CS8
IC709	8-759-702-07	s	IC NJM13700M
IC710	8-752-052-73	s	IC CXA1451M
IC711	8-759-271-04	s	IC LT1252CS8
IC712	8-752-052-73	s	IC CXA1451M
IC901	8-759-926-48	s	IC SN74HC244NS
IC902	8-759-926-48	s	IC SN74HC244NS
IC903	8-759-926-48	s	IC SN74HC244NS
JR102	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR106	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR110	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR114	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR116	1-216-295-91	■	RES, CHIP 0 5% 1/10W
JR118	1-216-295-91	s	RES, CHIP ■ 5% 1/10W
JR120	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR122	1-216-295-91	s	RES, CHIP ■ 5% 1/10W
JR124	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR126	1-216-295-91	■	RES, CHIP ■ 5% 1/10W
JR702	1-216-295-91	■	RES, CHIP 0 5% 1/10W
JR704	1-216-295-91	s	RES, CHIP 0 5% 1/10W
L101	1-412-525-31	s	INDUCTOR 10uH
L102	1-412-525-31	s	INDUCTOR 10uH
L103	1-408-777-00	s	INDUCTOR, CHIP 10uH
L104	1-408-777-00	s	INDUCTOR, CHIP 10uH
L105	1-408-789-21	s	INDUCTOR, CHIP 100uH
L106	1-408-793-21	s	INDUCTOR, CHIP 220uH
L108	1-408-777-00	s	INDUCTOR, CHIP 10uH
L109	1-408-777-00	s	INDUCTOR, CHIP 10uH
L110	1-408-777-00	s	INDUCTOR, CHIP 10uH
L111	1-408-777-00	■	INDUCTOR, CHIP 10uH
L112	1-408-777-00	s	INDUCTOR, CHIP 10uH
L113	1-408-785-21	s	INDUCTOR, CHIP 47uH
L114	1-408-777-00	s	INDUCTOR, CHIP 10uH
L115	1-408-777-00	■	INDUCTOR, CHIP 10uH
L116	1-408-777-00	s	INDUCTOR, CHIP 10uH
L301	1-412-525-31	s	INDUCTOR 10uH

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Ref. No. or Q'ty	Part No.	SP	Description
L302	1-408-777-00	s	INDUCTOR, CHIP 10uH
L304	1-408-777-00	■	INDUCTOR, CHIP 10uH
L305	1-408-777-00	■	INDUCTOR, CHIP 10uH
L307	1-408-777-00	s	INDUCTOR, CHIP 10uH
L401	1-408-777-00	s	INDUCTOR, CHIP 10uH
L402	1-408-777-00	s	INDUCTOR, CHIP 10uH
L403	1-408-777-00	s	INDUCTOR, CHIP 10uH
L404	1-408-777-00	s	INDUCTOR, CHIP 10uH
L405	1-408-777-00	s	INDUCTOR, CHIP 10uH
L406	1-408-777-00	s	INDUCTOR, CHIP 10uH
L407	1-408-777-00	■	INDUCTOR, CHIP 10uH
L408	1-408-777-00	s	INDUCTOR, CHIP 10uH
L409	1-408-790-00	s	INDUCTOR, CHIP 120uH
L410	1-408-790-00	s	INDUCTOR, CHIP 120uH
L411	1-408-785-21	s	INDUCTOR, CHIP 47uH
L412	1-408-777-00	s	INDUCTOR, CHIP 10uH
L701	1-408-777-00	s	INDUCTOR, CHIP 10uH
L702	1-408-777-00	s	INDUCTOR, CHIP 10uH
PS101 ⚠	1-532-675-00	s	LINK, IC 1.5A
PS102 ⚠	1-532-685-00	s	LINK, IC 0.6A
PS301 ⚠	1-532-637-00	s	LINK, IC 1.0A
Q101	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q102	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q103	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q104	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q105	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q106	8-729-216-22	s	TRANSISTOR 2SA1162
Q107	8-729-216-22	s	TRANSISTOR 2SA1162
Q108	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q121	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q122	8-729-175-73	■	TRANSISTOR 2SC2757
Q123	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q124	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q125	8-729-216-22	s	TRANSISTOR 2SA1162
Q126	8-729-109-44	■	TRANSISTOR 2SK94
Q127	8-729-216-22	s	TRANSISTOR 2SA1162
Q401	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q402	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q403	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q404	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q405	8-729-216-22	s	TRANSISTOR 2SA1162
Q406	8-729-216-22	s	TRANSISTOR 2SA1162
Q407	8-729-216-22	s	TRANSISTOR 2SA1162
Q408	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q409	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q410	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q411	8-729-216-22	s	TRANSISTOR 2SA1162
Q412	8-729-216-22	s	TRANSISTOR 2SA1162
Q413	8-729-216-22	s	TRANSISTOR 2SA1162
Q414	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q415	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q416	8-729-112-65	■	TRANSISTOR 2SA1462-Y33
Q417	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q418	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q419	8-729-216-22	s	TRANSISTOR 2SA1162
Q420	8-729-175-73	s	TRANSISTOR 2SC2757
Q421	8-729-175-73	s	TRANSISTOR 2SC2757
Q422	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q423	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q424	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q425	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q426	8-729-175-73	s	TRANSISTOR 2SC2757
Q427	8-729-175-73	s	TRANSISTOR 2SC2757
Q428	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q429	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q430	8-729-216-22	■	TRANSISTOR 2SA1162
Q431	8-729-216-22	s	TRANSISTOR 2SA1162
Q432	8-729-175-73	s	TRANSISTOR 2SC2757
Q433	8-729-216-22	s	TRANSISTOR 2SA1162
Q434	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q435	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q436	8-729-175-73	s	TRANSISTOR 2SC2757
Q437	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q438	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q439	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q440	8-729-216-22	s	TRANSISTOR 2SA1162
Q441	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q442	8-729-175-73	s	TRANSISTOR 2SC2757
Q443	8-729-216-22	■	TRANSISTOR 2SA1162
Q444	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q445	8-729-175-73	■	TRANSISTOR 2SC2757
Q446	8-729-216-22	s	TRANSISTOR 2SA1162
Q447	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q448	8-729-120-28	■	TRANSISTOR 2SC1623-L5L6
Q449	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q450	8-729-112-65	■	TRANSISTOR 2SA1462-Y33
Q701	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q702	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q703	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q704	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q705	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q706	8-729-175-73	s	TRANSISTOR 2SC2757
Q707	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q708	8-729-112-65	s	TRANSISTOR 2SA1462-Y33
Q709	8-729-175-73	s	TRANSISTOR 2SC2757
Q710	8-729-116-64	s	TRANSISTOR 2SK508-K51
Q711	8-729-112-65	■	TRANSISTOR 2SA1462-Y33
R101	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R102	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R103	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R104	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R105	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R106	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R107	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R108	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R109	1-218-772-11	s	METAL 680K 0.5% 1/10W
R110	1-208-812-11	s	METAL, CHIP 18K 0.5% 1/10W
R111	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R112	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R113	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R114	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R115	1-216-695-11	■	METAL, CHIP 68K 0.5% 1/10W
R116	1-218-758-11	s	METAL, CHIP 180K 0.5% 1/10W
R117	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R118	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R119	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R120	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R121	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R122	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R123	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R124	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R125	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R126	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R154	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R155	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R156	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R157	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R158	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R159	1-216-687-11	■	METAL, CHIP 33K 0.5% 1/10W
R160	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R161	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R163	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R164	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R165	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R166	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R167	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R168	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R169	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R170	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R171	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R172	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R173	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R174	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R175	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R176	1-216-627-11	■	METAL, CHIP 100 0.5% 1/10W
R177	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R178	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R179	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R180	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R181	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R182	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R183	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R184	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R185	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R186	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R187	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R188	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R189	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R190	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R191	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R192	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R193	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R194	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R195	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R196	1-216-642-11	s	METAL, CHIP 430 0.5% 1/10W
R197	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R198	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R199	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R200	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R201	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R202	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R203	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R204	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R205	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R206	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R207	1-216-623-11	■	METAL, CHIP 68 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R208	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R209	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R210	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R211	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R212	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R213	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R214	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R215	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R221	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R222	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R223	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R224	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R225	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R226	1-208-814-11	s	METAL, CHIP 22K 0.5% 1/10W
R227	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R228	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R301	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R302	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R303	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R304	1-216-657-11	■	METAL, CHIP 1.8K 0.5% 1/10W
R305	1-216-657-11	■	METAL, CHIP 1.8K 0.5% 1/10W
R306	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R307	1-216-647-11	■	METAL, CHIP 680 0.5% 1/10W
R308	1-216-655-11	■	METAL, CHIP 1.5K 0.5% 1/10W
R312	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R313	1-216-655-11	■	METAL, CHIP 1.5K 0.5% 1/10W
R401	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R402	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R403	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R404	1-216-691-11	■	METAL, CHIP 47K 0.5% 1/10W
R405	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R406	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R407	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R408	1-216-651-11	■	METAL, CHIP 1K 0.5% 1/10W
R409	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R411	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R412	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R413	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R414	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R415	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R416	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R417	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R418	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R419	1-208-800-11	■	METAL, CHIP 5.6K 0.5% 1/10W
R420	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R421	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R422	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R423	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R425	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R426	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R427	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R428	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R429	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R430	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R431	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R432	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R433	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R434	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R436	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R437	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R438	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R439	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R440	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R441	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R442	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R443	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R444	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R445	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R446	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R447	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R448	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R449	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R450	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R451	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R452	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R453	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R454	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R455	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R456	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R458	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R459	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R460	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R461	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R462	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R463	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R464	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R465	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R466	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R467	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R468	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R469	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R470	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R471	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R472	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R473	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R474	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R475	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R476	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R477	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R478	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R479	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R480	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R481	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R482	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R483	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R484	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R485	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R486	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R487	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R488	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R489	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R491	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R492	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R494	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R495	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R496	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R497	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R498	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R499	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R500	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R501	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R502	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R503	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R504	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R505	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R506	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R507	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R508	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R509	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R510	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R511	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R512	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R513	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R514	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R515	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R516	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R517	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R519	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R520	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R522	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R523	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R524	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R525	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R526	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R527	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R528	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R529	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R530	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R531	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R532	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R533	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R534	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R535	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R536	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R537	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R538	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R539	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R540	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R541	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R542	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R543	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R544	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R545	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R546	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R547	1-216-295-91	s	RES, CHIP 0 5% 1/10W
R548	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R549	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R550	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R551	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R552	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R553	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R554	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R555	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R556	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R557	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R558	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R559	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R560	1-208-800-11	■	METAL, CHIP 5.6K 0.5% 1/10W
R561	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R562	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R563	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R564	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R565	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R566	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R567	1-216-661-11	■	METAL, CHIP 2.7K 0.5% 1/10W
R568	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R569	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R570	1-216-667-11	s	METAL, CHIP 4.7M 0.5% 1/10W
R571	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R572	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R573	1-208-800-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R574	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R575	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R576	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R577	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R578	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R579	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R580	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R581	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R582	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R583	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R584	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R585	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R586	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R587	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R588	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R589	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R590	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R591	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R592	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R593	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R594	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R595	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R596	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R597	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R598	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R599	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R600	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R601	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R602	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R603	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R604	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R605	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R606	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R607	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R608	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R609	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R610	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R611	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R612	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R613	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R614	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R616	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R617	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R618	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R619	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W

(DA-79P BOARD FOR EK)

Ref. No. or Q'ty	Part No.	SP	Description
R620	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R621	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R622	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R623	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R624	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R625	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R626	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R701	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R702	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R703	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R704	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R705	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R706	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R707	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R708	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R709	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R710	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R711	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R712	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R713	1-216-667-11	■	METAL, CHIP 4.7K 0.5% 1/10W
R714	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R715	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R716	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R717	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R718	1-216-687-11	■	METAL, CHIP 33K 0.5% 1/10W
R719	1-216-663-11	■	METAL, CHIP 3.3K 0.5% 1/10W
R720	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R721	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R722	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R723	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R724	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R725	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R726	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R727	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R728	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R729	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R730	1-216-659-11	■	METAL, CHIP 2.2K 0.5% 1/10W
R731	1-216-655-11	■	METAL, CHIP 1.5K 0.5% 1/10W
R732	1-208-774-11	■	METAL, CHIP 470 0.5% 1/10W
R733	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R734	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R735	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R736	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R737	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R738	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R739	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R740	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R741	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R742	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R743	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R744	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R745	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R746	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R747	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R748	1-208-771-11	s	METAL, CHIP 360 0.5% 1/10W
R749	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R750	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R751	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R752	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R753	1-208-774-11	s	METAL, CHIP 470 0.5% 1/10W
R754	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R755	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R756	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R757	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R758	1-216-675-11	■	METAL, CHIP 10K 0.5% 1/10W
R759	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R760	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R761	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R762	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R763	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R764	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R765	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R766	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R767	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R768	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R769	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R770	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R771	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R772	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R773	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R774	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R775	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R776	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R777	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R778	1-216-631-11	■	METAL, CHIP 150 0.5% 1/10W
R779	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
RB101	1-236-907-11	s	RESISTOR BLOCK, CHIP 100kx4
RB301	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB302	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB303	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB304	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB305	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB306	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB307	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB308	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB309	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB310	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB311	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB312	1-236-907-11	s	RESISTOR BLOCK, CHIP 100kx4
RB313	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB314	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB315	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB316	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB317	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB318	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB319	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RB320	1-239-425-11	s	RESISTOR BLOCK, CHIP 1.8kx4
RV101	1-241-763-11	s	RES, ADJ METAL 4.7K
RV102	1-241-785-11	s	RES, ADJ METAL 10k
RV103	1-241-784-11	s	RES, ADJ METAL 4.7k
RV106	1-241-764-11	s	RES, ADJ METAL 10K
RV401	1-241-761-11	s	RES, ADJ METAL 1K
RV402	1-241-783-11	s	RES, ADJ METAL 2.2k
RV403	1-241-783-11	s	RES, ADJ METAL 2.2k
RV404	1-241-783-11	s	RES, ADJ METAL 2.2k
RV405	1-241-763-11	s	RES, ADJ METAL 4.7K
RV406	1-241-763-11	s	RES, ADJ METAL 4.7K

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Ref. No. or Q'ty	Part No.	SP	Description
RV407	1-241-762-11	s	RES, ADJ METAL 2.2k
RV408	1-241-763-11	s	RES, ADJ METAL 4.7K
RV409	1-241-760-21	s	RES, ADJ METAL 470
RV410	1-241-760-21	s	RES, ADJ METAL 470
RV411	1-241-760-21	s	RES, ADJ METAL 470
RV412	1-241-783-11	s	RES, ADJ METAL 2.2k
RV701	1-241-783-11	s	RES, ADJ METAL 2.2k
RV702	1-241-783-11	s	RES, ADJ METAL 2.2k
RV703	1-241-760-21	s	RES, ADJ METAL 470
RV704	1-241-783-11	s	RES, ADJ METAL 2.2k
RV705	1-241-760-21	s	RES, ADJ METAL 470
RV706	1-241-783-11	■	RES, ADJ METAL 2.2k
S101	1-554-399-00	s	SWITCH, TOGGLE
S102	1-554-027-00	s	SWITCH, DIGITAL
S301	1-571-060-11	s	SWITCH, SLIDE
S302	1-554-027-00	s	SWITCH, DIGITAL
S303	1-553-252-00	s	SWITCH, DIGITAL
S401	1-570-373-12	s	SWITCH, SLIDE
TH101	1-800-071-11	s	THERMISTOR, S-300
TP301	1-535-877-22	o	TERMINAL, TP
TP302	1-535-877-22	o	TERMINAL, TP
TP303	1-535-877-22	o	TERMINAL, TP
TP304	1-535-877-22	o	TERMINAL, TP
TP305	1-535-877-22	o	TERMINAL, TP
TP306	1-535-877-22	o	TERMINAL, TP
VC0101	1-760-268-11	s	VCO, CRYSTAL 17.734475MHz
VC0102	1-760-266-11	■	VCO, CRYSTAL 14.187500MHz

KY-309 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-394-A	o	MOUNTED CIRCUIT BOARD, KY-309
1pc	2-139-131-11	o	HEAT SINK, CON.
5pcs	2-140-311-04	s	KEY TOP
4pcs	3-178-140-01	o	SPACER
1pc	3-186-503-01	o	SW CHIP (A)
35pcs	4-928-315-01	s	KEY TOP
1pc	4-928-315-11	s	KEY TOP
1pc	7-682-950-01	s	SCREW +PSW 3X12
BZ1	1-529-025-00	s	BUZZER
C1	1-128-401-11	s	ELECT 100uF 20% 25V
C3	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C4	1-128-401-11	s	ELECT 100uF 20% 25V
C6	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C7	1-128-401-11	s	ELECT 100uF 20% 25V
C8	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C9	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C10	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C11	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C12	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C13	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C14	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C15	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C16	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C17	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C18	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C19	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C20	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C21	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C23-27	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C29-33	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C34	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C35	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C36	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C37	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C39	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C40	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C41	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C43	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C44	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C45-72	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C74	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C76	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C78	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C80	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C82	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C84	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C86	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C99	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C101	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C102	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C104	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C105	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C106	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C107	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C109	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C110	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C112	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C113	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C201	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C202	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C204	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C207	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C209	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C212	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C213	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C214	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
CN1	1-506-699-11	o	CONNECTOR, LCSC 26P, MALE
CN2	1-506-469-11	s	CONNECTOR 4P, MALE
CN3	1-506-469-11	s	CONNECTOR 4P, MALE
CN4	1-506-469-11	s	CONNECTOR 4P, MALE
CN5	1-506-469-11	s	CONNECTOR 4P, MALE
CN6	1-564-009-11	o	CONNECTOR 10P, MALE
CN7	1-564-009-11	o	CONNECTOR 10P, MALE
CN8	1-506-469-11	s	CONNECTOR 4P, MALE
CN114	1-526-659-00	o	SOCKET, IC 28P
D1-33	8-719-979-87	s	LED LD-701MG, GRN
D34-40	8-719-979-87	s	LED LD-701MG, GRN
D41	8-719-984-41	s	DIODE HDSP-4850-S22
D42	8-719-984-41	s	DIODE HDSP-4850-S22
D43-46	8-719-979-87	s	LED LD-701MG, GRN
D47-51	8-719-981-55	s	LED GL8HD22, RED
E1-5	1-535-877-22	s	TERMINAL, TP
IC1	8-749-920-71	s	IC SI3522V
IC2	8-759-030-26	s	IC MC34050ML
IC3	8-759-973-71	s	IC TL7705CPS-B
IC4	8-759-151-97	s	IC UPD70320GJ-8-5BG
IC6	8-759-927-46	s	IC SN74HC00ANS
IC7	8-759-927-46	s	IC SN74HC00ANS
IC8	8-759-925-78	s	IC SN74HC10ANS
IC10	8-759-926-77	s	IC SN74HC541ANS
IC11	8-759-926-11	s	IC SN74HC138ANS
IC12	8-759-926-11	s	IC SN74HC138ANS
IC13	8-752-341-85	s	IC CXK58257AM-12LL-T6
IC14	8-759-329-11	o	IC 27C512-DFS3-KY14V1.00, EPROM
IC15	8-759-106-58	s	IC UPD7004C
IC16	8-759-009-06	s	IC MC14052BF
IC17	8-759-009-06	s	IC MC14052BF
IC18	8-759-009-06	s	IC MC14052BF
IC19	8-759-112-63	s	IC UPD4701AC
IC20	8-759-926-77	s	IC SN74HC541ANS
IC21	8-759-926-77	s	IC SN74HC541ANS
IC22	8-759-938-68	s	IC CXD1095Q
IC23	8-759-938-68	s	IC CXD1095Q
IC101	8-759-938-68	s	IC CXD1095Q
IC102	8-759-098-12	s	IC TD62083F
IC103	8-759-098-12	s	IC TD62083F
IC104	8-759-098-12	s	IC TD62083F
IC105	8-759-098-12	s	IC TD62083F
IC106	8-759-938-68	s	IC CXD1095Q
IC107	8-759-098-12	s	IC TD62083F
IC108	8-759-098-12	s	IC TD62083F

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Ref. No. or Q'ty	Part No.	SP	Description
IC109	8-759-098-12	s	IC TD62083F
IC110	8-759-098-12	s	IC TD62083F
IC111	8-759-938-68	s	IC CXD1095Q
IC112	8-759-098-12	s	IC TD62083F
IC113	8-759-098-12	s	IC TD62083F
IC114	8-759-098-12	s	IC TD62083F
IC115	8-759-098-12	s	IC TD62083F
IC116	8-759-938-68	s	IC CXD1095Q
IC117	8-759-098-12	s	IC TD62083F
IC118	8-759-098-12	s	IC TD62083F
IC119	8-759-098-12	s	IC TD62083F
IC120	8-759-098-12	s	IC TD62083F
IC121	8-759-938-68	s	IC CXD1095Q
IC122	8-759-098-12	s	IC TD62083F
IC123	8-759-098-12	s	IC TD62083F
IC124	8-759-098-12	s	IC TD62083F
IC125	8-759-098-12	s	IC TD62083F
IC201	8-759-938-68	s	IC CXD1095Q
IC202	8-759-938-68	s	IC CXD1095Q
IC203	8-759-098-12	s	IC TD62083F
IC204	8-759-098-12	s	IC TD62083F
IC206	8-759-930-77	s	IC SN74LS247NS
IC207	8-759-930-77	s	IC SN74LS247NS
IC208	8-759-930-77	s	IC SN74LS247NS
IC209	8-759-930-77	s	IC SN74LS247NS
IC210	8-759-930-77	s	IC SN74LS247NS
IC211	8-759-930-77	s	IC SN74LS247NS
IC212	8-759-930-77	s	IC SN74LS247NS
IC213	8-759-098-12	s	IC TD62083F
IC214	8-759-098-12	s	IC TD62083F
L1	1-412-525-31	s	INDUCTOR 10uH
ND1-11	8-719-906-41	s	LED GL-9D03D, RED
PS1	⚠ 1-576-124-11	s	RINK, IC
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
R1	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R2	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R3	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R4	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R5	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R6	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R7	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R8	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R9	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R10	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R11	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R12	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R14	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R15	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R16	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R17	1-208-812-11	s	METAL, CHIP 18K 0.5% 1/10W
R21	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R22-35	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R44	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R45	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
RB1	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8

(KY-309 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RB2-6	1-239-430-11	s	RESISTOR BLOCK, CHIP 4.7kx4
RB7-14	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB15	1-236-907-11	s	RESISTOR BLOCK, CHIP 100kx4
RB16	1-236-907-11	s	RESISTOR BLOCK, CHIP 100kx4
RB401	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB402	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB403	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB404	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB405	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB406	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB407	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB408	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB409	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB410	1-239-416-11	s	RESISTOR BLOCK, CHIP 220kx4
RB411	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB412	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB413	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB414	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB415	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB416	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB417	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB418	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB419	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB420	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB501	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB502	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB503	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB504	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB505	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB506	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB507	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB508	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB509	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB510	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB511	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB512	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB513	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB514	1-239-414-11	s	RESISTOR BLOCK, CHIP 150kx4
RB515	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB516	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB517	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB518	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB519	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB520	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB521	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB522	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB523	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB524	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB525	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB526	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB527	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB528	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB529	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB530	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB531	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB532	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB533	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB534	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB535	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4

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Ref. No. or Q'ty	Part No.	SP	Description
RB536	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB537	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB538	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB539	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB540	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB541	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB542	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB543	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB544	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB545	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB546	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
RB547	1-239-426-11	s	RESISTOR BLOCK, CHIP 2.2kx4
S1-12	1-571-654-21	s	SWITCH, PUSH
S13	1-571-653-21	s	SWITCH, PUSH
S14	1-571-654-21	s	SWITCH, PUSH
S15	1-571-654-21	s	SWITCH, PUSH
S16	1-571-653-21	s	SWITCH, PUSH
S17	1-571-654-21	s	SWITCH, PUSH
S18	1-571-653-21	s	SWITCH, PUSH
S19-23	1-571-654-21	s	SWITCH, PUSH
S24	1-571-653-21	s	SWITCH, PUSH
S25	1-762-282-11	s	SWITCH, PUSH (WITH LED)
S26-29	1-571-654-21	s	SWITCH, PUSH
S31-36	1-571-654-21	s	SWITCH, PUSH
S38-47	1-762-282-11	s	SWITCH, PUSH (WITH LED)
S48	1-571-653-21	s	SWITCH, PUSH
S49-53	1-571-654-21	s	SWITCH, PUSH
S54	1-762-281-11	s	SWITCH, PUSH (WITH LED)
S55	1-571-654-21	s	SWITCH, PUSH
S56-71	1-762-281-11	s	SWITCH, PUSH (WITH LED)
X1	1-760-165-11	s	RESONATOR, CERAMIC 16.00MHz

KY-311 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-392-A	o	MOUNTED CIRCUIT BOARD, KY-311
4pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
C1	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C2	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
CN1	1-506-469-11	s	CONNECTOR 4P, MALE
RV1	1-238-724-11	s	RES, VAR(STICK) CARBON 10Kx2

LE-55B BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-620-338-11	o	PRINTED CIRCUIT BOARD, LE-55
4pcs	3-674-390-00	s	HOLDER (B), LED
CN1	1-564-013-31	s	CONNECTOR 3P, MALE
D1	8-719-812-32	s	LED TLY123, YEL
D2	8-719-812-32	s	LED TLY123, YEL
D3	8-719-812-32	s	LED TLY123, YEL
D4	8-719-812-32	s	LED TLY123, YEL
R1	1-249-408-11	s	CARBON 180 5% 1/4W
R2	1-249-408-11	s	CARBON 180 5% 1/4W
R3	1-249-408-11	s	CARBON 180 5% 1/4W
R4	1-249-408-11	s	CARBON 180 5% 1/4W

MB-548 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-414-A	o	MOUNTED CIRCUIT BOARD, MB-548
CN22	1-564-013-31	s	CONNECTOR 3P, MALE
CN23	1-564-607-11	o	CONNECTOR, VH 6P, MALE
CN24	1-564-215-11	o	CONNECTOR 4P, MALE

MY-62 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-403-A	o	MOUNTED CIRCUIT BOARD, MY-62
2pcs	3-166-184-01	o	LEVER, PC BOARD
8pcs	4-886-821-11	s	SCREW, S TIGHT, +PTTWH 3X6
2pcs	7-626-320-11	s	PIN, SPRING 3X8
4pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
6pcs	2-280-622-01	■	SUPPORT (M3), HEXAGON
6pcs	7-682-545-04	■	SCREW +B 3X4
C1	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C2	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C3	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C4-10	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C101	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C102	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C103	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C104	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C105	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C106	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C107	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C108	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C109	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C110	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C111	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C112	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C113	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C114	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C115	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C116	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C117	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C118	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C119	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C120	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C121	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C122	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C123	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C124	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C125	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C126	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C127	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C128	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C129	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C130	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C131	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C132	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C133	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C134	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C135	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C136	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C137	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C201	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C202	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C203	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C204	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C207	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C208	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C209	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C211	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C212	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C213	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C214	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C215	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C216	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C217	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C218	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C219	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C220	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C221	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C222	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C223	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C224	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C225	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C226	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C227	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C228	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C229	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C230	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C231	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C232	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C233	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C301	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C302	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C303	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C304	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C305	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C306	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C307	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C308	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C309	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C310	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C311	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C312	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C313	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C314	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
CN7	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN9	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN60	1-770-265-11	s	CONNECTOR, BB 60P, HERMAPHRODITIC
CN70	1-770-265-11	s	CONNECTOR, BB 60P, HERMAPHRODITIC
IC101	8-759-926-48	s	IC SN74HC244NS
IC102	8-759-926-48	s	IC SN74HC244NS
IC103	8-759-926-48	s	IC SN74HC244NS
IC104	8-759-926-48	s	IC SN74HC244NS
IC105	8-759-174-16	s	IC TC74VHC244F
IC106	8-759-925-85	s	IC SN74HC32ANS
IC107	8-759-925-76	s	IC SN74HC08ANS
IC108	8-759-175-29	s	IC TC74VHC374F
IC109	8-759-985-45	s	IC 74AC175SJ
IC110	8-759-987-82	s	IC 74AC00SJ
IC111	8-759-925-90	s	IC SN74HC74ANS
IC112	8-759-926-24	s	IC SN74HC164ANS
IC113	8-759-985-32	s	IC 74AC138SJ
IC114	8-759-985-32	s	IC 74AC138SJ
IC115	8-759-985-32	s	IC 74AC138SJ
IC116	8-759-926-28	s	IC SN74HC174ANS

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Ref. No. or Q'ty	Part No.	SP	Description
IC117	8-759-926-28	s	IC SN74HC174ANS
IC118	8-759-926-28	s	IC SN74HC174ANS
IC119	8-759-926-67	s	IC SN74HC374ANS
IC120	8-759-983-24	s	IC CXD8033Q
IC121	8-759-983-24	s	IC CXD8033Q
IC122	8-759-983-24	s	IC CXD8033Q
IC123	8-759-925-76	s	IC SN74HC08ANS
IC124	8-759-925-76	s	IC SN74HC08ANS
IC125	8-759-925-76	s	IC SN74HC08ANS
IC126	8-759-926-12	s	IC SN74HC139ANS
IC127	8-759-927-46	s	IC SN74HC00ANS
IC128	8-759-175-29	s	IC TC74VHC374F
IC129	8-759-925-85	s	IC SN74HC32ANS
IC130	8-759-925-76	s	IC SN74HC08ANS
IC131	8-759-925-76	s	IC SN74HC08ANS
IC132	8-759-925-76	s	IC SN74HC08ANS
IC133	8-759-983-24	s	IC CXD8033Q
IC134	8-759-294-72	s	IC CXD8872Q
IC135	8-759-063-39	s	IC CXD8267Q
IC136	8-759-063-39	s	IC CXD8267Q
IC137	8-759-063-39	s	IC CXD8267Q
IC201	8-759-063-40	s	IC CXD8266Q
IC202	8-759-063-40	s	IC CXD8266Q
IC203	8-759-063-40	s	IC CXD8266Q
IC204	8-759-063-40	s	IC CXD8266Q
IC205	8-759-332-34	s	IC CY7C194-25VCTEL
IC206	8-759-332-34	s	IC CY7C194-25VCTEL
IC207	8-759-332-34	s	IC CY7C194-25VCTEL
IC208	8-759-332-34	s	IC CY7C194-25VCTEL
IC209	8-759-332-34	s	IC CY7C194-25VCTEL
IC210	8-759-332-34	s	IC CY7C194-25VCTEL
IC211	8-759-332-34	s	IC CY7C194-25VCTEL
IC212	8-759-332-34	s	IC CY7C194-25VCTEL
IC213	8-759-332-34	s	IC CY7C194-25VCTEL
IC214	8-759-332-34	s	IC CY7C194-25VCTEL
IC215	8-759-332-34	s	IC CY7C194-25VCTEL
IC216	8-759-332-34	s	IC CY7C194-25VCTEL
IC217	8-759-332-34	s	IC CY7C194-25VCTEL
IC218	8-759-332-34	s	IC CY7C194-25VCTEL
IC219	8-759-332-34	s	IC CY7C194-25VCTEL
IC220	8-759-332-34	s	IC CY7C194-25VCTEL
IC221	8-759-063-39	s	IC CXD8267Q
IC222	8-759-063-39	s	IC CXD8267Q
IC223	8-759-063-40	s	IC CXD8266Q
IC224	8-759-332-34	s	IC CY7C194-25VCTEL
IC225	8-759-332-34	s	IC CY7C194-25VCTEL
IC226	8-759-332-34	s	IC CY7C194-25VCTEL
IC227	8-759-332-34	s	IC CY7C194-25VCTEL
IC228	8-759-332-34	s	IC CY7C194-25VCTEL
IC229	8-759-332-34	s	IC CY7C194-25VCTEL
IC230	8-759-332-34	s	IC CY7C194-25VCTEL
IC231	8-759-332-34	s	IC CY7C194-25VCTEL
IC232	8-759-063-39	s	IC CXD8267Q
IC233	8-759-063-39	s	IC CXD8267Q
IC301	8-759-063-40	s	IC CXD8266Q
IC302	8-759-063-40	s	IC CXD8266Q
IC303	8-759-332-34	s	IC CY7C194-25VCTEL
IC304	8-759-332-34	s	IC CY7C194-25VCTEL
IC305	8-759-332-34	s	IC CY7C194-25VCTEL

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Ref. No. or Q'ty	Part No.	SP	Description
IC306	8-759-332-34	s	IC CY7C194-25VCTEL
IC307	8-759-332-34	s	IC CY7C194-25VCTEL
IC308	8-759-332-34	s	IC CY7C194-25VCTEL
IC309	8-759-332-34	s	IC CY7C194-25VCTEL
IC310	8-759-332-34	s	IC CY7C194-25VCTEL
IC311	8-759-294-73	s	IC CXD8871Q
IC312	8-759-294-70	s	IC CXD8927Q
IC313	8-759-294-70	s	IC CXD8927Q
IC314	8-759-294-70	s	IC CXD8927Q
IC315	8-759-294-70	s	IC CXD8927Q
L1	1-412-525-31	s	INDUCTOR 10uH
PS1	⚠ 1-532-675-00	s	LINK, IC 1.5A
R101	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R102	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R103	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R104	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R105	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R106	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R107	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R108	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
RB101	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB102	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB103	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB104	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB105	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB106	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB107	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB108	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB201	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB202	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8

SY-199 BOARD FOR UC

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-401-A	o	MOUNTED CIRCUIT BOARD, SY-199
2pcs	3-166-184-01	o	LEVER, PC BOARD
2pcs	3-166-185-01	s	NUT, PLATE
2pcs	3-187-547-01	o	NUT, TERMINAL
8pcs	4-886-821-11	s	SCREW, S TIGHT, +PTTWH 3X6
4pcs	7-621-773-87	s	SCREW +B 2.6X10
2pcs	7-626-320-11	■	PIN, SPRING 3X8
2pcs	7-682-545-04	s	SCREW +B 3X4
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
BT1	1-528-598-11	s	BATTERY, NICKEL-CADMIUNM(3GB60-FB2)
C1-6	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C10	1-124-584-00	s	ELECT 100uF 20% 10V
C11	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C12-17	1-124-584-00	s	ELECT 100uF 20% 10V
C101	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C102	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C103	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C104	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C105	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C106	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C107	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C108	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C109	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C112	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C113	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C114	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C115	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C116	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C117	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C118	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C119	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C120	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C121	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C122	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C123	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C124	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C125	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C126	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C127	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C128	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C201	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C202	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C203	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C204	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C207	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C208	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C209	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C211	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C212	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C213	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C214	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C215	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C216	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C217	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C218	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C219	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C220	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C221	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C222	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C223	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C224	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C225	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C226	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C227	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C228	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C229	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C230	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C231	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C301	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C302	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C303	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C304	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C305	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C306	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C307	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C308	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C309	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C310	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C311	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C312	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C313	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C314	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C316	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C317	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C318	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C319	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C320	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C321	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C322	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C323	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C324	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C325	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C326	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C327	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C328	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C329	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C330	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C331	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C332	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C333	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C334	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C401	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C402	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C403	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C404	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C405	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C406	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C407	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C408	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C409	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C410	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C411	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C412	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

(SY-199 BOARD FOR UC)

Ref. No. or Q'ty	Part No.	SP	Description
CN4	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN5	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN6	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CNI1	1-526-662-21	■	SOCKET, IC (DP) 40P
CNI2	1-526-662-21	o	SOCKET, IC (DP) 40P
CNI3	1-526-660-21	s	SOCKET, IC 32P
CNI4	1-526-660-21	s	SOCKET, IC 32P
CNI5	1-526-660-21	s	SOCKET, IC 32P
CNI6	1-526-660-21	s	SOCKET, IC 32P
D101	8-719-911-19	s	DIODE 1SS119
IC1	8-759-329-12	o	IC 27C210A-DFS3-SY1V1.00, EPROM
IC2	8-759-329-13	o	IC 27C210A-DFS3-EF2V1.00, EPROM
IC3	8-759-329-14	o	IC 27C4001-DFS3NEF3V1.00, EPROM
IC4	8-759-329-15	o	IC 27C4001-DFS3NEF4V1.00, EPROM
IC101	8-752-800-48	s	IC CXQ70116P-8
IC102	8-759-926-49	s	IC SN74HC245NS
IC103	8-759-926-49	s	IC SN74HC245NS
IC104	8-759-926-68	s	IC SN74HC375ANS
IC105	8-759-926-66	■	IC SN74HC373ANS
IC106	8-759-926-66	s	IC SN74HC373ANS
IC107	8-759-925-78	s	IC SN74HC10ANS
IC108	8-759-926-11	■	IC SN74HC138ANS
IC109	8-759-925-85	s	IC SN74HC32ANS
IC112	8-752-337-86	s	IC CXK58267AM-10L
IC113	8-752-337-86	■	IC CXK58267AM-10L
IC114	8-759-505-28	s	IC MAX691CPE
IC115	8-752-806-91	s	IC CXQ71054P
IC116	8-759-105-76	s	IC UPD71059C
IC117	8-759-107-51	s	IC CXQ71051P
IC118	8-759-107-51	s	IC CXQ71051P
IC119	8-759-926-31	s	IC AM26LS31PC
IC120	8-759-926-32	s	IC AM26LS32PC
IC121	8-759-926-67	s	IC SN74HC374ANS
IC122	8-759-926-67	s	IC SN74HC374ANS
IC123	8-759-926-67	s	IC SN74HC374ANS
IC124	8-759-926-67	s	IC SN74HC374ANS
IC125	8-759-925-90	s	IC SN74HC74ANS
IC126	8-759-926-48	s	IC SN74HC244NS
IC127	8-759-926-48	■	IC SN74HC244NS
IC128	8-759-925-72	s	IC SN74HC02ANS
IC201	8-752-803-58	s	IC CXQ70116P-10
IC202	8-759-926-49	s	IC SN74HC245NS
IC203	8-759-926-49	s	IC SN74HC245NS
IC204	8-759-926-68	s	IC SN74HC375ANS
IC205	8-759-926-66	s	IC SN74HC373ANS
IC206	8-759-926-66	s	IC SN74HC373ANS
IC207	8-759-926-12	s	IC SN74HC139ANS
IC208	8-759-926-12	s	IC SN74HC139ANS
IC209	8-759-925-81	s	IC SN74HC20ANS
IC210	8-759-926-12	s	IC SN74HC139ANS
IC211	8-759-926-11	s	IC SN74HC138ANS
IC212	8-759-925-79	s	IC SN74HC11ANS
IC213	8-759-925-85	s	IC SN74HC32ANS
IC214	8-759-925-85	s	IC SN74HC32ANS
IC215	8-752-356-60	s	IC CXK5864CM-10LL
IC216	8-752-356-60	s	IC CXK5864CM-10LL

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Ref. No. or Q'ty	Part No.	SP	Description
IC217	8-759-926-48	s	IC SN74HC244NS
IC218	8-759-926-48	■	IC SN74HC244NS
IC219	8-759-926-67	s	IC SN74HC374ANS
IC220	8-759-926-67	s	IC SN74HC374ANS
IC221	8-759-926-48	s	IC SN74HC244NS
IC222	8-759-926-48	s	IC SN74HC244NS
IC223	8-759-926-48	s	IC SN74HC244NS
IC224	8-759-926-48	s	IC SN74HC244NS
IC225	8-759-926-67	s	IC SN74HC374ANS
IC226	8-759-926-48	s	IC SN74HC244NS
IC227	8-759-926-48	s	IC SN74HC244NS
IC228	8-759-926-48	s	IC SN74HC244NS
IC229	8-759-926-48	■	IC SN74HC244NS
IC230	8-759-926-48	s	IC SN74HC244NS
IC301	8-759-186-17	■	IC TC74VHC541F(EL)
IC302	8-759-294-69	s	IC CXD8879Q
IC303	8-752-340-52	s	IC CXK48324Q
IC304	8-752-340-52	s	IC CXK48324Q
IC305	8-752-340-75	s	IC CXK1206AM
IC306	8-752-340-75	s	IC CXK1206AM
IC307	8-759-186-17	s	IC TC74VHC541F(EL)
IC308	8-759-294-69	s	IC CXD8879Q
IC309	8-752-340-52	s	IC CXK48324Q
IC310	8-752-340-52	■	IC CXK48324Q
IC311	8-752-340-75	s	IC CXK1206AM
IC312	8-752-340-75	s	IC CXK1206AM
IC313	8-759-926-62	s	IC SN74HC365ANS
IC314	8-759-926-62	s	IC SN74HC365ANS
IC315	8-759-926-77	s	IC SN74HC541ANS
IC316	8-759-926-77	s	IC SN74HC541ANS
IC317	8-759-063-42	s	IC CXD8264Q
IC318	8-759-053-58	■	IC IDT6116SA25S0-T
IC319	8-759-053-58	s	IC IDT6116SA25S0-T
IC320	8-759-325-86	s	IC 74AC157SJX
IC321	8-759-325-86	s	IC 74AC157SJX
IC322	8-759-325-86	s	IC 74AC157SJX
IC323	8-759-926-77	s	IC SN74HC541ANS
IC324	8-759-926-77	s	IC SN74HC541ANS
IC325	8-759-053-58	■	IC IDT6116SA25S0-T
IC326	8-759-053-58	s	IC IDT6116SA25S0-T
IC327	8-759-985-67	■	IC 74AC374SJ
IC328	8-759-985-67	s	IC 74AC374SJ
IC329	8-759-986-51	s	IC 74ACT399SJ
IC330	8-759-174-16	s	IC TC74VHC244F
IC331	8-759-925-74	■	IC TC74HC04ANS
IC332	8-759-925-76	s	IC SN74HC08ANS
IC333	8-759-926-11	■	IC SN74HC138ANS
IC334	8-759-926-11	s	IC SN74HC138ANS
IC401	8-759-186-17	s	IC TC74VHC541F(EL)
IC402	8-752-340-57	s	IC CXK1203Q
IC403	8-759-294-68	s	IC CXD8925Q
IC404	8-759-294-69	s	IC CXD8879Q
IC405	8-759-294-68	s	IC CXD8925Q
IC406	8-752-340-52	s	IC CXK48324Q
IC407	8-752-340-75	s	IC CXK1206AM
IC408	8-759-294-69	s	IC CXD8879Q
IC409	8-759-926-24	s	IC SN74HC164ANS
IC410	8-759-926-24	s	IC SN74HC164ANS
IC411	8-759-926-18	■	IC SN74HC157ANS

(SY-199 BOARD FOR UC)

Ref. No. or Q'ty	Part No.	SP	Description
IC412	8-759-926-17	s	IC SN74HC153ANS
JR302	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR307	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR310	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR315	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR403	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR405	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR406	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR408	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR415	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR424	1-216-295-91	s	RES, CHIP 0 5% 1/10W
L1	1-412-525-31	s	INDUCTOR 10uH
PS1 ⚠	1-532-675-00	■	LINK, IC 1.5A
Q101	8-729-195-23	s	TRANSISTOR 2SA952
R101	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R102	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R103	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R104	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R105	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R106	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R107	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R201	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R302	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R303	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R401	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R402	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R403	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R404	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
RB101	1-239-464-11	s	RESISTOR BLOCK, CHIP 2.2kx8
RB102	1-239-306-11	s	RESISTOR BLOCK, CHIP 10kx8
RB201	1-239-306-11	s	RESISTOR BLOCK, CHIP 10kx8
RB301	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB302	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB303	1-239-309-11	■	RESISTOR BLOCK, CHIP 100kx8
RB304	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB305	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB306	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB307	1-239-309-11	■	RESISTOR BLOCK, CHIP 100kx8
RB308	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB401	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB402	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
S101	1-571-060-11	s	SWITCH, SLIDE
S102	1-554-027-00	s	SWITCH, DIGITAL
S201	1-692-536-11	s	SWITCH, DIP 8-CKT
S401	1-554-027-00	s	SWITCH, DIGITAL
X101	1-577-255-11	s	OSC, CRYSTAL 8.00 MHz
X201	1-577-337-11	s	OSC, CRYSTAL 10.00 MHz

SY-199P BOARD FOR EK

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8310-712-A	o	MOUNTED CIRCUIT BOARD, SY-199P
2pcs	3-166-184-01	o	LEVER, PC BOARD
2pcs	3-166-185-01	s	NUT, PLATE
2pcs	3-187-547-01	o	NUT, TERMINAL
8pcs	4-886-821-11	■	SCREW, S TIGHT, +PTTWH 3X6
4pcs	7-621-773-87	s	SCREW +B 2.6X10
2pcs	7-626-320-11	s	PIN, SPRING 3X8
2pcs	7-682-545-04	s	SCREW +B 3X4
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
BT1	1-528-598-11	s	BATTERY, NICKEL-CADMIUNM(3GB60-FB2)
C1-6	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C10	1-124-584-00	s	ELECT 100uF 20% 10V
C11	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C12-17	1-124-584-00	s	ELECT 100uF 20% 10V
C101	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C102	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C103	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C104	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C105	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C106	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C107	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C108	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C109	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C112	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C113	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C114	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C115	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C116	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C117	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C118	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C119	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C120	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C121	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C122	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C123	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C124	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C125	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C126	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C127	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C128	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C201	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C202	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C203	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C204	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C207	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C208	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C209	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C210	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C211	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C212	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C213	1-163-038-91	■	CERAMIC, CHIP 0.1uF 25V
C214	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C215	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C216	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C217	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C218	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

(SY-199P BOARD FOR EK)

Ref. No. or Q'ty	Part No.	SP	Description
C219	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C220	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C221	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C222	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C223	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C224	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C225	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C226	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C227	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C228	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C229	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C230	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C231	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C301	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C302	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C303	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C304	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C305	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C306	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C307	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C308	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C309	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C310	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C311	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C312	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C313	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C314	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C316	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C317	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C318	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C319	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C320	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C321	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C322	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C323	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C324	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C325	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C326	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C327	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C328	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C329	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C330	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C331	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C332	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C333	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C334	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C401	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C402	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C403	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C404	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C405	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C406	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C407	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C408	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C409	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C410	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C411	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C412	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V

(SY-199P BOARD FOR EK)

Ref. No. or Q'ty	Part No.	SP	Description
CN4	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN5	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CN6	1-506-748-11	s	CONNECTOR, DIN 96P, MALE
CNI1	1-526-662-21	o	SOCKET, IC (DP) 40P
CNI2	1-526-662-21	o	SOCKET, IC (DP) 40P
CNI3	1-526-660-21	o	SOCKET, IC 32P
CNI4	1-526-660-21	o	SOCKET, IC 32P
CNI5	1-526-660-21	o	SOCKET, IC 32P
CNI6	1-526-660-21	o	SOCKET, IC 32P
D101	8-719-911-19	s	DIODE 1SS119
IC1	8-759-329-12	o	IC 27C210A-DFS3-SY1V1.00, EPROM
IC2	8-759-329-13	o	IC 27C210A-DFS3-EF2V1.00, EPROM
IC3	8-759-329-20	o	IC 27C4001-DFS3PEF3V2.00, EPROM
IC4	8-759-329-21	o	IC 27C4001-DFS3PEF4V2.00, EPROM
IC101	8-752-800-48	s	IC CXQ70116P-8
IC102	8-759-926-49	s	IC SN74HC245NS
IC103	8-759-926-49	s	IC SN74HC245NS
IC104	8-759-926-68	s	IC SN74HC375ANS
IC105	8-759-926-66	s	IC SN74HC373ANS
IC106	8-759-926-66	s	IC SN74HC373ANS
IC107	8-759-925-78	s	IC SN74HC10ANS
IC108	8-759-926-11	s	IC SN74HC138ANS
IC109	8-759-925-85	s	IC SN74HC32ANS
IC112	8-752-337-86	s	IC CXK58267AM-10L
IC113	8-752-337-86	s	IC CXK58267AM-10L
IC114	8-759-505-28	s	IC MAX691CPE
IC115	8-752-806-91	s	IC CXQ71054P
IC116	8-759-105-76	s	IC UPD71059C
IC117	8-759-107-51	s	IC CXQ71051P
IC118	8-759-107-51	s	IC CXQ71051P
IC119	8-759-926-31	s	IC AM26LS31PC
IC120	8-759-926-32	s	IC AM26LS32PC
IC121	8-759-926-67	s	IC SN74HC374ANS
IC122	8-759-926-67	s	IC SN74HC374ANS
IC123	8-759-926-67	s	IC SN74HC374ANS
IC124	8-759-926-67	s	IC SN74HC374ANS
IC125	8-759-925-90	s	IC SN74HC74ANS
IC126	8-759-926-48	s	IC SN74HC244NS
IC127	8-759-926-48	s	IC SN74HC244NS
IC128	8-759-925-72	s	IC SN74HC02ANS
IC201	8-752-803-58	s	IC CXQ70116P-10
IC202	8-759-926-49	s	IC SN74HC245NS
IC203	8-759-926-49	s	IC SN74HC245NS
IC204	8-759-926-68	s	IC SN74HC375ANS
IC205	8-759-926-66	s	IC SN74HC373ANS
IC206	8-759-926-66	s	IC SN74HC373ANS
IC207	8-759-926-12	s	IC SN74HC139ANS
IC208	8-759-926-12	s	IC SN74HC139ANS
IC209	8-759-925-81	s	IC SN74HC20ANS
IC210	8-759-926-12	s	IC SN74HC139ANS
IC211	8-759-926-11	s	IC SN74HC138ANS
IC212	8-759-925-79	s	IC SN74HC11ANS
IC213	8-759-925-85	s	IC SN74HC32ANS
IC214	8-759-925-85	s	IC SN74HC32ANS
IC215	8-752-356-60	s	IC CXK5864CM-10LL
IC216	8-752-356-60	s	IC CXK5864CM-10LL

(SY-199P BOARD FOR EK)

Ref. No. or Q'ty	Part No.	SP	Description
IC217	8-759-926-48	s	IC SN74HC244NS
IC218	8-759-926-48	s	IC SN74HC244NS
IC219	8-759-926-67	s	IC SN74HC374ANS
IC220	8-759-926-67	s	IC SN74HC374ANS
IC221	8-759-926-48	s	IC SN74HC244NS
IC222	8-759-926-48	s	IC SN74HC244NS
IC223	8-759-926-48	s	IC SN74HC244NS
IC224	8-759-926-48	s	IC SN74HC244NS
IC225	8-759-926-67	s	IC SN74HC374ANS
IC226	8-759-926-48	s	IC SN74HC244NS
IC227	8-759-926-48	s	IC SN74HC244NS
IC228	8-759-926-48	s	IC SN74HC244NS
IC229	8-759-926-48	s	IC SN74HC244NS
IC230	8-759-926-48	s	IC SN74HC244NS
IC301	8-759-186-17	s	IC TC74VHC541F(EL)
IC302	8-759-294-69	s	IC CXD8879Q
IC303	8-752-340-52	s	IC CXK48324Q
IC304	8-752-340-52	s	IC CXK48324Q
IC305	8-752-340-75	s	IC CXK1206AM
IC306	8-752-340-75	s	IC CXK1206AM
IC307	8-759-186-17	s	IC TC74VHC541F(EL)
IC308	8-759-294-69	s	IC CXD8879Q
IC309	8-752-340-52	s	IC CXK48324Q
IC310	8-752-340-52	s	IC CXK48324Q
IC311	8-752-340-75	s	IC CXK1206AM
IC312	8-752-340-75	s	IC CXK1206AM
IC313	8-759-926-62	s	IC SN74HC365ANS
IC314	8-759-926-62	s	IC SN74HC365ANS
IC315	8-759-926-77	s	IC SN74HC541ANS
IC316	8-759-926-77	s	IC SN74HC541ANS
IC317	8-759-063-42	s	IC CXD8264Q
IC318	8-759-053-58	s	IC IDT6116SA25SO-T
IC319	8-759-053-58	s	IC IDT6116SA25SO-T
IC320	8-759-325-86	s	IC 74AC157SJX
IC321	8-759-325-86	s	IC 74AC157SJX
IC322	8-759-325-86	s	IC 74AC157SJX
IC323	8-759-926-77	s	IC SN74HC541ANS
IC324	8-759-926-77	s	IC SN74HC541ANS
IC325	8-759-053-58	s	IC IDT6116SA25SO-T
IC326	8-759-053-58	s	IC IDT6116SA25SO-T
IC327	8-759-985-67	s	IC 74AC374SJ
IC328	8-759-985-67	s	IC 74AC374SJ
IC329	8-759-986-51	s	IC 74ACT399SJ
IC330	8-759-174-16	s	IC TC74VHC244F
IC331	8-759-925-74	s	IC TC74HC04ANS
IC332	8-759-925-76	s	IC SN74HC08ANS
IC333	8-759-926-11	s	IC SN74HC138ANS
IC334	8-759-926-11	s	IC SN74HC138ANS
IC401	8-759-186-17	s	IC TC74VHC541F(EL)
IC402	8-752-340-57	s	IC CXK1203Q
IC403	8-759-294-68	s	IC CXD8925Q
IC404	8-759-294-69	s	IC CXD8879Q
IC405	8-759-294-68	s	IC CXD8925Q
IC406	8-752-340-52	s	IC CXK48324Q
IC407	8-752-340-75	s	IC CXK1206AM
IC408	8-759-294-69	s	IC CXD8879Q
IC409	8-759-926-24	s	IC SN74HC164ANS
IC410	8-759-926-24	s	IC SN74HC164ANS
IC411	8-759-926-18	s	IC SN74HC157ANS
IC412	8-759-926-17	s	IC SN74HC153ANS
JR302	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR307	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR310	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR315	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR401	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR403	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR404	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR406	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR414	1-216-295-91	s	RES, CHIP 0 5% 1/10W
JR424	1-216-295-91	s	RES, CHIP 0 5% 1/10W
L1	1-412-525-31	s	INDUCTOR 10uH
PS1	⚠ 1-532-675-00	s	LINK, IC 1.5A
Q101	8-729-195-23	s	TRANSISTOR 2SA952
R101	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R102	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R103	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R104	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R105	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R106	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R107	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R201	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R302	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R303	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R401	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R402	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R403	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R404	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
RB101	1-239-464-11	s	RESISTOR BLOCK, CHIP 2.2kx8
RB102	1-239-306-11	s	RESISTOR BLOCK, CHIP 10kx8
RB201	1-239-306-11	s	RESISTOR BLOCK, CHIP 10kx8
RB301	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB302	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB303	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB304	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB305	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB306	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB307	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB308	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB401	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
RB402	1-239-309-11	s	RESISTOR BLOCK, CHIP 100kx8
S101	1-571-060-11	s	SWITCH, SLIDE
S102	1-554-027-00	s	SWITCH, DIGITAL
S201	1-692-536-11	s	SWITCH, DIP 8-CKT
S401	1-554-027-00	s	SWITCH, DIGITAL
X101	1-577-255-11	s	OSC, CRYSTAL 8.00 MHz
X201	1-577-337-11	s	OSC, CRYSTAL 10.00 MHz

VR-135 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
3pc	1-644-610-11	o	PRINTED CIRCUIT BOARD, VR-135
C1	1-124-589-11	s	ELECT 47uF 20% 16V
C2	1-161-485-00	s	CERAMIC 0.1uF 50V
C4	1-161-485-00	s	CERAMIC 0.1uF 50V
C5	1-161-485-00	s	CERAMIC 0.1uF 50V
CN1	1-506-489-11	s	CONNECTOR 10P, MALE
RV1	1-223-247-11	s	RES, VAR CARBON 10Kx2

VR-137 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-644-612-11	o	PRINTED CIRCUIT BOARD, VR-137
C1	1-124-589-11	s	ELECT 47uF 20% 16V
C2	1-161-485-00	s	CERAMIC 0.1uF 50V
C3	1-161-485-00	s	CERAMIC 0.1uF 50V
C4	1-161-485-00	s	CERAMIC 0.1uF 50V
C5	1-161-485-00	s	CERAMIC 0.1uF 50V
C6	1-161-485-00	s	CERAMIC 0.1uF 50V
C7	1-161-485-00	s	CERAMIC 0.1uF 50V
C8	1-161-485-00	s	CERAMIC 0.1uF 50V
C9	1-161-485-00	s	CERAMIC 0.1uF 50V
C10	1-161-485-00	s	CERAMIC 0.1uF 50V
C11	1-161-485-00	s	CERAMIC 0.1uF 50V
CN1	1-506-489-11	s	CONNECTOR 10P, MALE
RV1	1-223-247-11	s	RES, VAR CARBON 10Kx2
RV2	1-223-247-11	s	RES, VAR CARBON 10Kx2
RV3	1-223-247-11	s	RES, VAR CARBON 10Kx2

VR-138 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-644-613-11	o	PRINTED CIRCUIT BOARD, VR-138
C1	1-124-589-11	s	ELECT 47uF 20% 16V
C2	1-161-485-00	s	CERAMIC 0.1uF 50V
C3	1-161-485-00	s	CERAMIC 0.1uF 50V
C4	1-161-485-00	s	CERAMIC 0.1uF 50V
C5	1-161-485-00	s	CERAMIC 0.1uF 50V
C6	1-161-485-00	s	CERAMIC 0.1uF 50V
C7	1-161-485-00	s	CERAMIC 0.1uF 50V
C8	1-161-485-00	s	CERAMIC 0.1uF 50V
C9	1-161-485-00	s	CERAMIC 0.1uF 50V
C10	1-161-485-00	s	CERAMIC 0.1uF 50V
C11	1-161-485-00	s	CERAMIC 0.1uF 50V
C12	1-161-485-00	s	CERAMIC 0.1uF 50V
C13	1-161-485-00	s	CERAMIC 0.1uF 50V
C14	1-161-485-00	s	CERAMIC 0.1uF 50V
CN1	1-564-014-11	s	CONNECTOR 4P, MALE
RV1	1-223-247-11	s	RES, VAR CARBON 10Kx2
RV2	1-223-247-11	s	RES, VAR CARBON 10Kx2
RV3	1-223-247-11	s	RES, VAR CARBON 10Kx2
RV4	1-223-247-11	s	RES, VAR CARBON 10Kx2

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
M1	1-541-329-41	s	FAN, DC
M2	1-467-705-11	s	ENCODER, ROTARY
S101	⚠ 1-570-117-41	s	SWITCH, ROCKER (AC POWER)
1pc	⚠ 1-468-016-11	s	REGULATOR, SWITCHING (SS0G1011) (FOR J, UC)
1pc	⚠ 1-468-016-21	s	REGULATOR, SWITCHING (SS0G1011KA) (FOR EK)
1pc	1-574-992-11	s	CABLE, FLAT 25P CONTROL PANEL TO CN1/KY-309 board
1pc	⚠ 1-580-375-11	s	INLET 3P

HARNESS ACW-300 (FOR J, UC):

Ref. No. or Q'ty	Part No.	SP	Description
(INLET 3P to ROCKER SWITCH S101)			
S101	⚠ 1-570-117-41	s	SWITCH, ROCKER (AC POWER)
1pc	⚠ 1-580-375-11	s	INLET 3P
1pc	4-378-341-01	o	COVER, SWITCH
1pc	4-601-466-11	o	COVER, 3P INLET
(ROCKER SWITCH to HOUSING 5P)			
S101	⚠ 1-570-117-41	s	SWITCH, ROCKER (AC POWER)
1pc	1-562-210-11	o	CONTACT, FEMALE AWG18-22
1pc	1-562-286-11	o	HOUSING 5P
1pc	4-378-341-01	o	COVER, SWITCH
(INLET 3P to WIRE GROUND)			
1pc	⚠ 1-580-375-11	s	INLET 3P
1pc	4-601-466-11	o	COVER, 3P INLET

HARNESS ACW-300PB (FOR EK):

Ref. No. or Q'ty	Part No.	SP	Description
(ROCKER SWITCH S101 to HOUSING 5P)			
S101	⚠ 1-570-117-41	s	SWITCH, ROCKER (AC POWER)
1pc	1-562-210-11	o	CONTACT, FEMALE AWG18-22
1pc	1-562-286-11	o	HOUSING 5P
1pc	4-378-341-01	o	COVER, SWITCH
(ROCKER SWITCH to HOUSING 5P)			
S101	⚠ 1-570-117-41	s	SWITCH, ROCKER (AC POWER)
1pc	1-562-210-11	o	CONTACT, FEMALE AWG18-22
1pc	1-562-286-11	o	HOUSING 5P
1pc	4-378-341-01	o	COVER, SWITCH
(HOUSING 5P to WIRE GROUND)			
1pc	1-535-340-11	o	CONTACT
1pc	1-562-210-11	o	CONTACT, FEMALE AWG18-22
1pc	1-562-286-11	o	HOUSING 5P

HARNESS DCW-300:

Ref. No. or Q'ty	Part No.	SP	Description
(CN1/LE-55B board to CN22/MB-548 board)			
CN1	1-569-196-31	o	HOUSING 3P
	1-569-193-21	o	CONTACT, FEMALE
CN22	1-569-196-11	o	HOUSING 3P
	1-569-193-11	o	CONTACT, FEMALE
(CN4/POWER SUPPLY to CN23/MB-548 board)			
CN4	1-562-640-11	o	HOUSING, CONNECTOR 8P
	1-562-210-11	o	CONTACT, FEMALE AWG18-22
CN23	1-562-287-11	o	HOUSING 6P
	1-562-210-11	o	CONTACT, FEMALE AWG18-22
(CN5/POWER SUPPLY to CN24/MB-548 board)			
CN5	1-562-287-11	o	HOUSING 6P
	1-569-193-21	o	CONTACT, FEMALE
CN24	1-562-285-11	s	HOUSING 4P
	1-569-193-11	o	CONTACT, FEMALE

HARNESS KY-1:
(CN1F/KY-311 board to CN2F/KY-309 board)
(CN1F/VR-135 board to CN3F/KY-309 board)
(CN1F/VR-135 board to CN4F/KY-309 board)
(CN1F/VR-135 board to CN5F/KY-309 board)
Unstock parts

HARNESS KY-2:
(CN1F/VR-137 board to CN6F/KY-309 board)
(CN1F/VR-138 board to CN7F/KY-309 board)
Unstock parts

8-4. PACKING MATERIALS & ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠ 1-551-812-11	s	CORD, POWER 3P (FOR UC)
1pc	1-765-378-51	o	CABLE, D-SUB 25P (DIGITAL VIDEO) 10m
1pc	⚠ 1-590-910-11	s	CORD, AC POWER 3P (FOR EK)
1pc	3-186-719-01	o	CHIP (B), SW
1pc	3-187-600-01	o	INDIVIDUAL CARTON (FOR EK)
1pc	3-187-601-01	o	SPACER (A)
1pc	3-187-603-01	o	CUSHION (L)
1pc	3-187-604-01	o	CUSHION (R)
1pc	3-187-605-01	o	INDIVIDUAL CARTON (FOR UC)
1pc	⚠ 3-798-124-21	s	MANUAL, INSTRUCTION (FOR UC, EK)
1pc	3-798-124-31	s	MANUAL, INSTRUCTION (FOR UC, EK)
1pc	3-798-124-41	s	MANUAL, INSTRUCTION (FOR EK)
6pcs	7-682-947-01	s	SCREW +PSW 3X6
8pcs	7-685-881-04	s	SCREW +BVTT 4X8 (S)

8-5. OPTIONAL FIXTURES

Part No.	SP	Description
J-6186-940-A	o	EXTENSION BOARD EX-326
J-6031-820-A	o	MULTI CONNECTOR CABLE (DIBNC)
J-6031-830-A	o	MULTI CONNECTOR CABLE (DOBNC)
J-6381-380-A	o	VIDEO CABLE (S-BNC)
1-765-378-51	o	25-PIN CONTROL CABLE (10m)

Standard
Product SPOT HEATER HS-600 (100V)
(117V)
(220V)
(240V)
NOZZLE HS-616 (for HS-600)
HS-619 (for HS-600)